

CRPL-F 187 PART A

FOR OFFICIAL USE

Atmospheric Data
1960

PART A
IONOSPHERIC DATA

ISSUED
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U. S. DEPARTMENT OF COMMERCE
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CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

IONOSPHERIC DATA

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SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/AGI Committee, May 1957, a new descriptive letter was introduced:

- M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

- Z (1) (qualifying letter) Measurement deduced from the third magnetoionic component.
- (2) (descriptive letter) Third magnetoionic component present.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

- a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N or R are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of f_oF_2 (and f_oE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of $h'F$ (and $h'E$ near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For f_oF_2 , as equal to or less than f_oF_1 .
2. For $h'F_2$, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G are counted as equal to or less than the median f_oE , or equal to or less than the lower frequency limit of the recorder.

B for fEs is counted on the low side when there is a numerical value of a higher layer characteristic; otherwise it is omitted from the median count.

S for fEs is counted on the low side at night; during the day it is omitted from the median count (beginning with data for November 1957).

Values of fEs missing for any other reason, and values of $h'Es$ missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D.C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If the count is four or less, the data are considered insufficient and no median value is computed.

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

3. For all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

- a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.
- b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.
- c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.
- d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

PREDICTED AND OBSERVED SUNSPOT NUMBERS

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number										
	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950
December		137	150*	150*	150	42	11	15	33	53	86
November		137	150*	150*	147	35	10	16	38	52	87
October		139	150*	150*	135	31	10	17	43	52	90
September		141	150*	150*	119	30	8	18	46	54	91
August	115	142	150*	150*	105	27	8	18	49	57	96
July	118	141	150*	150*	95	22	8	20	51	60	101
June	120	143	150*	150*	89	18	9	21	52	63	103
May	125	146	150*	150*	77	16	10	22	52	68	102
April	130	150*	150*	150*	68	13	10	24	52	74	101
March	133	150*	150*	150*	60	14	11	27	52	78	103
February	135	150*	150*	150*	53	14	12	29	51	82	103
January	136	150*	150*	150*	48	12	14	30	53	85	105

*This number is believed representative of solar activity at a maximum portion of the current sunspot cycle.

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1958.

Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	146	150	151	156	160	164
1957	170	172	174	181	186	188	191	194	197	200	201	200
1958	199	201	201	197	191	187	185	184	183	181	179	179
1959	177	175	173	167	162	158	152	151				

WORLD - WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:
Watheroo, Western Australia

University of Graz:
Graz, Austria

Meteorological Service of the Belgian Congo and Ruanda-Urundi:
Bunia, Belgian Congo
Elisabethville, Belgian Congo
Leopoldville, Belgian Congo

British Department of Scientific and Industrial Research, Radio Research Board:
Ibadan, Nigeria (University College of Ibadan)
Singapore, British Malaya

Defence Research Board, Canada:
Churchill, Canada

Universidad de Concepcion:
Concepcion, Chile

Danish National Committee of URSI:
Godhavn, Greenland
Narsarssuak, Greenland

General Direction of Posts and Telegraphs, Helsinki, Finland:
Nurmijarvi, Finland

The Finnish Academy of Sciences and Letters:
Sodankyla, Finland

French National Center for Telecommunications Studies:
Kerguelen I.

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

Icelandic Post and Telegraph Administration:
Reykjavik, Iceland

Geophysical and Geodetic Institute, Genoa, Italy:
Monte Capellino, Italy

Ministry of Postal Services, Radio Research Laboratories, Tokyo,
Japan:

Akita, Japan
Tokyo (Kokubunji), Japan
Wakkanai, Japan
Yamagawa, Japan

Norwegian Defence Research Establishment, Kjeller per Lillestrom,
Norway:

Tromso, Norway

Manila Observatory:
Baguio, P. I.

Royal Board of Swedish Telegraphs, Radio Department, Stockholm,
Sweden:

Lulea, Sweden

United States Army Signal Corps:

Adak, Alaska
Cape Canaveral, Florida
Ft. Monmouth, New Jersey
Grand Bahama I.
Okinawa I.
Thule, Greenland
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):

Anchorage, Alaska
Boulder, Colorado
Fairbanks (College), Alaska (Geophysical Institute of the
University of Alaska)
Huancayo, Peru (Instituto Geofisico de Huancayo)
Juliaca, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Point Barrow, Alaska
Talara, Peru (Instituto Geofisico de Huancayo)
Washington, D. C.

ERRATUM

Attention is invited to the ERRATA on page vii of the previous issue, CRPL-F186 (Part A), which item was inadvertently omitted from the table of contents.

TABULATIONS OF ELECTRON DENSITY DATA

Reduction of hourly ionospheric vertical soundings to electron density profiles has become a part of the systematic ionospheric data program of the Central Radio Propagation Laboratory, National Bureau of Standards. Scalings of ionograms for this purpose are being provided by ionosphere stations operated by CRPL and the U. S. Army Signal Corps. For the present, the hourly profile data from one CRPL station, Puerto Rico, are appearing in the monthly CRPL-F Reports, Part A. These data are in place of the standard ionogram reductions formerly provided by this Station. The very considerable task of scaling the ionograms for this purpose is being undertaken by T. R. Gilliland, Engineer in Charge, Puerto Rico Ionosphere Sounding Station; the computations are performed at the NBS Boulder Laboratories by a group headed by J. W. Wright. Basic conversion of virtual to true heights uses the well-known matrix method developed by K. G. Budden of the Cavendish Laboratory, Cambridge University, programmed for an IBM 704 computer.

The tabulations provide the following basic electron density profile data for each hour of each day of the month:

<u>Quantity</u>	<u>Units</u>	<u>Remarks</u>
Electron Density (N)	$\times 10^3 = \text{electrons/cm}^3$	Body of table; given at each 10 km of height.
NMAX	$\times 10^3 = \text{electrons/cm}^3$	Always the highest value of N at each hour. To maintain this rule, the electron density at the next 10 km increment above HMAX is always given as exactly equal to NMAX (unless HMAX coincides with a 10 km level).
QUALification	(Alphabetic)	A standard scaling letter qualifying the observation when necessary.
HMIN	Kilometers	The height of zero or very low electron density, obtained by linear extrapolation of the electron density vs. height curve.
SCAT	Kilometers	One half of the half-thickness of the parabola best fitting the upper portion of the F region profile. Approximates the scale height near the level HMAX.
HMAX	Kilometers	The height of maximum electron density, determined by fitting a parabola to the upper portion of the profile.
SHMAX	$\times 10^{10} = \text{electrons/cm}^2$ column.	Obtained by integration of the profile between the limits HMIN and HMAX.

Tabulations of the average electron densities each hour, at each 10 km level, for the quiet ionosphere, are also given. These averages include the profiles obtained when the magnetic character figure Kp is less than 4+. The number of profiles entering the average for each hour is given by CNT. The other parameters of the layer, HMIN, SCAT, HMAX, SHMAX, are averaged in a similar way.

Before the averaging process, the individual profiles are extrapolated above HMAX by a Chapman distribution of 100 km scale height. This assumed model seems to agree well with the few published measurements dealing with the topside profile of the F-region.* Extrapolation is necessary in order to calculate homogeneous averages near HMAX and the average profiles are, in fact, given up to 950 km. Also given are the average estimated integrated electron densities to infinity, SHINF (same units as SHMAX); this is an approximation to the total electron content in a column of the ionosphere.

*See Wright, J.W. "A Model of the F-Region Above HMAX F2" J. Geophys. Res. V.65 pp 185-191.

ELECTRON DENSITY

[illegible]

ELECTRON DENSITY

	PUERTO RICO				60 W				2 DEC 1999			
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OVAL			A		A		A		A			
HMIN	109		115		110		219	208	199	195	214	203
SCAT	53+4		70+1		62+6		65+6	44+1	51+4	48+1	53+0	51+5
HMAX	317		359		330		349	327	308	304	346	344
SHMAX	1787		2078		1803		1244	785	619	364	270	237
KM												
360			1801									
350			1792				1473				348	304
340			1766		1846		1466				347	303
330			1721		1846		1443	1240			340	298
320	1907		1656		1835		1402	1232			326	288
310	1806		1573		1800		1341	1194	917	540	310	270
300	1802		1575		1742		1272	1122	911	539	283	248
290	1824		1358		1659		1183	1021	888	529	252	221
280	1727		1240		1555		1060	892	846	508	216	190
270	1604		1086		1421		904	740	789	477	179	157
260	1446		960		1277		739	573	710	429	143	127
250	1281		834		1143		540	389	598	371	112	100
240	1133		724		982		335	240	477	310	79+1	76+7
230	960		631		816		143	123	345	240	53+5	58+4
220	812		550		643		12+4	64+1	207	172	26+4	44+7
210	689		480		508			12+4	90+4	97+2		21+4
200	588		417		389				12+4	47+1		
190	508		353		297							
180	431		297		233							
170	365		238		188							
160	310		202		157							
150	259		194		126							
140	219		174		138							
130	196		167		120							
120	184		143		114							
110	112				12+4							

ELECTRON DENSITY

	PUERTO RICO				60 W				3 DEC 1959			
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL					F				A	A	A	A
HMIN	259	219	197	248	344	260	274					
SCAT	43.4	38.5	60.7	84.9	58.4	61.9	62.7					
HMAX	364	296	324	402	446	405	421					
SHMAX	223	216	162	266	175	217	257					
KM												
450					235							
440					234							
430					230		292					
420					223		292					
410				246	211	246	290					
400				246	198	245	284					
390				244	181	242	274					
380				242	161	235	261					
370	362			236	136	226	245					
360	361			229	106	212	224					
350	352			222	60.0	196	198					
340	334			213		177	170					
330	306		193	202		155	140					
320	269		193	188		132	110					
310	221		191	173		109	82.3					
300	170	446	186	154		86.4	60.0					
290	119	444	178	132		67.0	45.0					
280	76.8	428	168	108		49.6	19.0					
270	49.6	398	155	81.6		31.0						
260	6.9	352	140	53.7								
250		271	122	12.4								
240		151	103									
230		66.8	83.8									
220		12.4	65.5									
210			47.0									
200			12.4									

ELECTRON DENSITY

PUERTO RICO										60 W					3 DEC 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300							
QUAL		A	A	B	A	A	A	A	A	A	A	A							
HMIN											A	197	226						
SCAT											206	404	483	56.8					
HMAX											296	317	342						
SHMAX											310	259	199						
KM																			
350													262						
340													262						
330													259						
320													375 252						
310													373 241						
300													573 363 226						
290													570 345 207						
280													550 321 183						
270													513 286 152						
260													458 240 118						
250													382 192 83.8						
240													277 143 55.1						
230													161 104 22.6						
220													83.8 71.4						
210													40.2 47.4						
200													12.4						

ELECTRON DENSITY

	PUERTO RICO					60 W					4 DEC 1959				
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100			
QUAL					F										
HMIN	239	257	228	219	226	247	259	218	110	109	110	110			
SCAT	48.7	53.0	46.0	42.0	48.5	71.8	52.2	41.8	39.4	38.8	44.8	44.4			
HMAX	346	374	320	295	333	377	368	315	270	263	279	286			
SHMAX	141	188	166	135	125	119	116	340	992	1200	1272	1422			
KM															
380		257				127									
370		256				127	161								
360		252				125	160								
350	208	244				122	156								
340	208	231			184	118	149								
330	203	216	280		184	113	139								
320	193	192	280		180	106	127	608							
310	182	161	277		173	99.2	113	606							
300	163	127	267	251	162	90.4	92.7	589							
290	139	97.2	251	250	148	80.4	75.1	555				1876			
280	112	68.5	231	243	129	68.8	57.6	508	1640		1669	1868			
270	83.8	46.7	198	229	106	56.8	40.2	427	1640	1984	1652	1817			
260	58.9	12.4	153	209	83.8	44.0	5.0	326	1612	1981	1595	1716			
250	41.5		92.2	183	62.3	12.4		212	1528	1929	1489	1573			
240	4.7		53.3	139	45.2			118	1400	1812	1341	1381			
230			12.4	83.8	16.1			60.0	1195	1627	1195	1143			
220				12.4				12.4	917	1367	1041	917			
210									643	1004	863	734			
200									446	716	679	588			
190									310	477	530	477			
180									227	344	404	401			
170									179	262	310	338			
160									146	212	251	286			
150									124	177	205	242			
140									110	154	169	204			
130									103	140	155	177			
120									92.8	131	146	165			
110									12.4	97.2	49.6	49.6			

ELECTRON DENSITY

	PUERTO RICO				60 W				5 DEC				1959			
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100				
QUAL													A		A	
HMIN	210	210	206	199	199	264	229	241	110	111	108	104				
SCAT	38.0	34.1	38.2	55.2	53.7	51.4	60.1	38.4	46.6	49.9	56.7	72.3				
HMAX	292	298	287	321	295	354	349	310	278	295	291	335				
SHMAX	171	132	121	153	110	85	141	288	833	1474	1646	2064				
KM																
360													127			
350													127		174	
340													125		173	
330													120		170	
320													198		164	
310													196		156	
300	335	262		191	156	91.7	146	588					1907	1969	1680	
290	335	259	235	183	156	77.6	133	557					1901	1969	1604	
280	327	244	233	171	153	61.5	117	508	1143	1861	1952	1519				
270	308	219	223	157	148	43.5	99.1	432	1134	1786	1907	1420				
260	280	179	206	138	139			80.1	310	1100	1674	1826	1304			
250	233	137	182	116	130			60.0	161	1041	1516	1724	1175			
240	171	94.5	146	92.6	115			42.0		952	1311	1578	1050			
230	107	63.6	99.7	69.7	98.2			4.3		834	1050	1395	924			
220	55.3	41.9	60.0	52.3	79.7					698	794	1181	806			
210			25.1	36.0	57.4					548	608	917	691			
200				2.3	12.4					417	477	679	583			
190										310	376	489	488			
180										230	302	371	411			
170										173	247	300	349			
160										136	204	250	299			
150										113	170	210	260			
140										102	143	179	226			
130										91.4	132	161	198			
120										80.5	112	149	175			
110										49.6		118	161			

ELECTRON DENSITY

PUERTO RICO						60 W						5 DEC 1959					
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300					
QUAL	A																
HMIN	110		110	113	111		209	199	199	265	251	220					
SCAT	72.4		71.5	61.7	63.2		56.5	59.3	55.3	49.3	40.7	39.6					
HMAX	340		380	354	351		342	345	337	377	340	306					
SHMAX	2253		2503	2482	2130		1443	1127	700	501	451	384					
KM																	
390	2048																
380	2048																
370	2037																
360	2007 2430 2032																
350	2032		1957	2428	2031		1846	1316		680	834						
340	2032		1883	2398	2016		1845	1313	854	631	834						
330	2023		1786	2337	1975		1824	1294	851	568	822						
320	1994		1779	2236	1907		1775	1257	834	493	784						
310	1947		1555	2111	1808		1696	1196	804	406	723	745					
300	1876		1425	1958	1692		1587	1127	758	301	633	741					
290	1792		1287	1786	1555		1446	1031	700	198	508	715					
280	1683		1143	1586	1407		1288	917	632	106	362	666					
270	1595		1004	1384	1252		1116	802	558	45.6	198	592					
260	1406		875	1109	1079		917	679	477		78.3	486					
250	1254		717	1004	917		679	565	394			348					
240	1077		679	834	769		433	446	319			143					
230	917		595	696	643		240	326	240			66.1					
220	772		523	573	547		97.2	198	161								
210	643		460	477	466		12.4	83.8	83.8								
200	545		405	397	395			12.4	12.4								
190	458		357	332	332												
180	381		316	281	280												
170	313		281	240	234												
160	262		248	204	196												
150	216		215	177	168												
140	179		183	158	148												
130	167		168	145	135												
120	112		139	71.4	115												

ELECTRON DENSITY

	PUERTO RICO				60 W				7 DEC 1959			
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	239	232	196	203	245	261	264	217	111	110	110	109
SCAT	45.6	34.5	29.0	242	69.3	62.0	43.9	39.2	30.9	43.6	46.9	67.5
HMAX	344	311	252	588	377	383	349	292	251	266	285	313
SHMAX	268	246	177	589	103	113	108	357	703	1026	1489	1681
KM												
590				198								
580				198								
570				198								
560				198								
550				197								
540				196								
530				196								
520				194								
510				193								
500				192								
490				190								
480				189								
470				187								
460				185								
450				182								
440				180								
430				177								
420				173								
410				170								
400				166								
390				162		135						
380				159	112	135						
370				156	111	134						
360				152	110	130						
350	424			149	107	125	184					
340	423			145	104	118	182					
330	414			142	98.8	112	175					
320	394	524		137	92.3	100	164					1555
310	365	524		132	85.4	88.0	148					1555
300	325	511		128	76.7	75.1	127	735				1541
290	273	477		122	67.2	62.0	101	735			1969	1511
280	219	417		117	57.5	48.5	74.2	718			1964	1463
270	151	340		111	48.2	28.6	46.1	679		1500	1920	1393
260	88.1	240	492	103	38.0			617	1354	1494	1831	1310
250	49.6	112	492	95.3	12.4			508	1354	1451	1701	1211
240	6.7	52.7	471	85.7				362	1315	1372	1523	1104
230			424	74.8				143	1198	1259	1298	984
220			335	61.4				40.2	1021	1077	1029	875
210			143	42.5					778	875	794	775
200		45.1							540	654	623	684
190									376	477	489	596
180									262	351	389	502
170									192	274	320	402
160									150	222	265	319
150									125	179	225	262
140									110	155	194	219
130									102	138	170	194
120									82.0	127	151	180
110										12.4	60.0	71.4

ELECTRON DENSITY

	PUERTO RICO					60 W					7 DEC 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300			
QUAL															
HMIN	110	109	110	110	110		A	220	189	209	234	218	198		
SCAT	63.4	72.0	63.9	53.7	56.7			47.3	54.5	55.7	40.7	36.1	39.4		
HMAX	307	315	331	318	316			308	311	361	323	303	288		
SHMAX	1423	1501	1775	1735	1627			861	641	502	366	332	255		
KM															
370															
360											608				
350											602				
340				1654							586				
330				1654							559	670			
320		1290	1641	1922	1801				875	523	669				
310	1446	1289	1608	1911	1795		1446	875	480	652	670				
300	1442	1277	1557	1867	1764		1437	866	429	615	668				
290	1422	1252	1478	1791	1705		1397	843	373	558	669	410			
280	1383	1209	1385	1681	1613		1322	805	310	477	603	405			
270	1324	1161	1271	1534	1498		1220	754	252	375	532	389			
260	1251	1102	1131	1365	1358		1079	684	198	255	430	358			
250	1162	1031	992	1183	1208		875	597	143	127	310	313			
240	1042	956	859	1004	1050		608	494	95.3	49.6	173	255			
230	909	881	737	817	875		286	373	64.6		80.1	190			
220	782	810	633	659	701		12.4	252	43.1		22.3	123			
210	663	743	549	540	549			153	3.8			64.4			
200	557	669	485	466	428			71.4				12.4			
190	466	578	435	378	330			12.4							
180	382	471	392	324	257										
170	298	367	350	281	207										
160	219	303	304	243	171										
150	176	259	258	211	143										
140	161	225	214	182	127										
130	154	198	181	161	121										
120	148	186	167	149	115										
110	83.8	97.2	60.0	49.6	40.2										

ELECTRON DENSITY

	PUERTO RICO					60 W				8 DEC 1959			
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	
OUAL	F	F											
HMIN	229	239	219	234	265	210	195	199	109	109	109	107	
SCAT	59.3	58.5	45.2	51.7	52.0	46.1	33.5	48.0	33.8	44.9	41.8	44.4	
HMAX	345	356	313	331	379	315	272	285	256	278	283	275	
SHMAX	277	238	164	123	159	152	106	294	638	1144	1416	1375	
KM													
380					219								
370					217								
360		310			211								
350	355	309			201								
340	354	304			179	186							
330	349	295			179	167							
320	339	280			177	147	235						
310	324	263	274		171	123	234						
300	304	240	269		162	98.5	228						
290	282	211	257		150	71.4	217						
280	250	173	242		136	49.6	200	229	499				
270	208	129	216		116	21.0	179	229	487				
260	161	87.3	179	92.6			151	222	466	1167	1546	1853	
250	112	51.1	130	68.5			120	205	437	1157	1463	1703	
240	67.9	6.5	83.8	45.5			87.6	181	389	1100	1341	1481	
230	12.4		51.1				60.0	138	316	994	1143	1225	
220			6.7				40.2	89.8	219	819	906	984	
210								54.4	97.2	596	698	754	
200								12.3	12.4	517	515	584	
190										286	396	458	
180										205	314	362	
170											157	253	
160											129	203	
150											110	167	
140												169	
130												219	
120												189	
110												127	

ELECTRON DENSITY

	PUERTO RICO					60 W					9 DEC 1959				
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100			
QUAL							J			S					
MMIN	209	239	207	205	268	308	213	210	109	108	109	108			
SCAT	65.2	31.2	43.9	51.7	73.3	58.3	38.7	31.7	33.3	52.9	51.2	56.7			
HMAX	346	308	301	309	416	420	308	276	256	290	284	294			
SHMAX	202	130	156	139	197	169	185	268	597	1186	1287	1398			
KM															
430						219									
420					198	219									
410					198	217									
400					196	212									
390					192	204									
380					186	193									
370					179	179									
360					169	162									
350	229				158	140									
340	229				145	114									
330	227				130	87.9									
320	222				112	60.0									
310	213	298	262	198	94.1	12.4	329								
300	202	293	262	197	76.8				1446		1528				
290	189	273	259	192	60.0		312		1446	1555	1526				
280	174	240	248	183	44.2		286	643	1433	1554	1503				
270	155	187	230	169	8.0		248	638	1394	1528	1457				
260	132	131	207	152			205	603	1050	1327	1473	1391			
250	108	71.4	175	133			161	540	1041	1233	1379	1312			
240	83.8	12.4	133	112			112	431	988	1125	1260	1183			
230	60.0		88.8	86.3			68.6	286	890	960	1131	1035			
220	41.8		52.7	57.8			40.2	127	745	803	979	884			
210	4.5		17.5	28.8					592	643	821	735			
200									437	508	679	598			
190									302	389	527	492			
180									207	296	411	411			
170									152	232	321	349			
160									121	186	259	295			
150									105	153	216	250			
140									92.6	133	183	211			
130									81.6	123	161	181			
120									75.5	117	151	170			
110									49.6	83.8	97.2	143			

ELECTRON DENSITY

	PUERTO RICO						60 W						9 DEC 1959							
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300								
QUAL													A							
MMIN	109	110	108	110	112	117	194	208	239	239	203	193								
SCAT	55.8	51.9	68.7	61.9	57.5	60.0	44.9	53.6	54.4	40.3	32.1	42.0								
HMAX	318	317	321	326	315	304	305	332	378	331	281	290								
SHMAX	1716	1838	1791	1620	1595	1331	797	672	565	500	332	229								
KM																				
380													716							
370													713							
360													697							
350													670							
340														917	631	928				
330														917	573	928				
320	1801	2048	1668	1555	1786				906	515	909									
310	1792	2038	1657	1530	1783	1555	1290	880	446	861										
300	1755	1992	1628	1487	1757	1554	1287	837	374	787										
290	1689	1907	1581	1420	1704	1534	1256	779	303	679	754	389								
280	1586	1786	1513	1334	1618	1492	1190	702	229	540	754	383								
270	1464	1623	1435	1226	1511	1428	1103	608	154	362	732	367								
260	1320	1446	1333	1116	1381	1350	960	508	90.4	188	674	360								
250	1143	1257	1215	995	1240	1240	794	389	52.5	77.8	573	302								
240	981	1035	1086	875	1085	1109	624	262	6.3	12.4	446	251								
230	834	865	960	765	894	948	417	143					262	198						
220	699	716	834	665	703	754	240	71.4					112	137						
210	589	596	707	573	532	550	112	21.2					51.6	80.4						
200	508	501	586	494	396	401	49.6								43.6					
190	441	424	477	417	306	281														
180	386	362	389	353	243	198														
170	335	314	322	294	198	152														
160	286	273	270	246	166	124														
150	240	234	230	208	143	107														
140	201	195	198	176	127	95.0														
130	176	174	175	156	120	86.7														
120	166	163	162	143	113	53.5														
110	97.2	83.8	97.2	12.4																

ELECTRON DENSITY

	PUERTO RICO						60 W				13 DEC 1959			
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100		
QUAL	S												A	A
HMIN	253	276	291	249	230	216	237	239	109	110	110	110		
SCAT	53.3	50.1	52.9	48.5	54.7	58.7	49.3	35.5	38.4	45.6	42.3	38.6		
HMAX	363	401	396	356	345	367	349	305	277	279	281	282		
SHMAX	164	166	174	177	174	183	180	263	754	1036	1272	1293		
KM														
410	224													
400	224												246	
390	221												245	
380	212												239	
370	224	201		229				208						
360	224	185		219		262		208						
350	220	164	201	261	235	204	262							
340	213	143	175	255	234	197	260							
330	202	118	145	244	230	187	253							
320	186	95.4	112	227	223	176	240							
310	168	73.2	80.1	205	210	161	222	599						
300	145	55.3	52.4	176	195	141	198	596						
290	121	41.7			143	175	121	169	571					1846 1907
280	93.2	12.4			110	152	101	134	527	1265	1420	1846	1905	
270	65.8			75.3	123	83.8	99.6	446	1254	1405	1817	1859		
260	42.3			47.3	93.0	69.1	71.4	318	1202	1355	1731	1748		
250			7.3	64.2	56.2	46.9	143	1107	1261	1608	1584			
240					41.6	45.8	12.4	12.4	960	1153	1416	1341		
230							32.8	754	1004	1166	1050			
220							10.1	540	805	875	794			
210									362	630	656	619		
200									254	493	508	523		
190									179	380	399	424		
180									131	290	328	354		
170									102	228	271	298		
160									89.6	182	226	247		
150									82.5	151	188	203		
140									79.1	131	162	179		
130									75.7	121	151	169		
120									72.3	114	137	154		
110									40.2	49.6	49.6	40.2		

ELECTRON DENSITY

	PUERTO RICO						60 W				13 DEC 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300			
QUAL	A						A				C				
HMIN	110							215	188	230	244	222	190		
SCAT	41.5							44.7	64.4	38.5	39.3	68.6	37.1		
HMAX	277							299	351	333	331	322	272		
SHMAX	1112							729	628	398	356	512	179		
KM															
360									679						
350									679						
340									674	716	670				
330									660	715	670	688			
320									639	697	657	688			
310									608	654	623	683			
300									1303	569	585	568	671		
290									1289	524	495	488	651		
280	1542									1240	473	389	389	627 355	
270	1532									1165	412	286	270	602 355	
260	1480									1050	348	168	127	554 346	
250	1387									886	286	91.9	52.9	460 324	
240	1261									643	225	49.6	310	292	
230	1062									362	169			83.8 240	
220	875									97.2	121				179
210	688									78.4					112
200	540									49.6					55.1
190	436									12.4					
180	353														
170	286														
160	228														
150	195														
140	179														
130	171														
120	163														
110	40.2														

ELECTRON DENSITY

	PUERTO RICO						60 W			15 DEC 1959			
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	
OVAL								F	F	S			
HMIN	209	219	188	200	266	258			109	112	109	112	
SCAT	25.8	28.5	30.5	43.5	69.6	58.6			55.4	44.8	39.6	58.0	
HMAX	272	277	253	276	407	404			304	290	291	303	
SHMAX	189	167	116	71	137	181			447	800	1473	1845	
KM													
410					143	208							
400					143	208							
390					141	205							
380					138	200							
370					133	189							
360					127	178							
350					118	163							
340					109	146							
330					98.1	127							
320					86.5	108							
310					74.7	90.2					2096		
300					63.3	74.0		516	1191	2294	2094	2448	
290					52.3	60.0		508	1191	2293	2070	2448	
280	516	454		127	41.5	47.8		492	1176	2249	2015	2418	
270	515	447		126	12.4	31.2		468	1131	2129	1929	2329	
260	483	413	292	123		4.3		436	1061	1946	1812	2185	
250	417	353	291	116				395	951	1669	1669	1975	
240	324	240	278	106				343	808	1301	1483	1694	
230	198	97.2	255	93.8				286	608	960	1279	1341	
220	77.5	12.4	203	75.3				228	433	716	1083	1050	
210	12.4		122	51.2				179	310	522	857	767	
200			60.0					143	211	389	643	573	
190			12.4					114	143	306	468	446	
180								93.6	108	246	354	367	
170								78.9	91.8	198	282	307	
160								67.7	83.0	161	231	260	
150								59.1	79.9	135	190	221	
140								53.7	76.8	124	163	183	
130								47.1	73.7	117	153	161	
120								31.9	66.6	110	144	151	
110								4.1		60.0		112	

ELECTRON DENSITY

	PUERTO RICO						60 W			15 DEC			1959	
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300		
OVAL							S	A	F					
HMIN	110	110	109	109	110	109	209	178	197	252	258	217		
SCAT	49.0	53.9	50.3	51.4	63.6	43.9	48.6	57.9	63.8	46.2	37.9	41.4		
HMAX	302	307	303	299	314	295	304	309	331	361	337	294		
SHMAX	1897	1892	1701	1475	1533	1120	879	597	421	327	285	305		
KM														
370											508			
360											508			
350											501			
340											508	482	573	
330											508	450	569	
320											504	408	545	
310	2361	2161	1969		1569		1433	774	494	353	502			
300	2361	2151	1967	1786	1550	1569	1431	769	478	289	438	599		
290	2327	2105	1934	1773	1513	1564	1405	753	456	219	348	597		
280	2235	2021	1851	1726	1456	1522	1348	725	428	143	227	581		
270	2104	1907	1738	1641	1370	1438	1260	684	391	83.8	97.2	550		
260	1928	1741	1598	1526	1270	1317	1143	632	342	44.7	24.6	498		
250	1724	1555	1437	1381	1165	1143	977	573	280			417		
240	1467	1341	1264	1193	1050	960	754	490	215			295		
230	1143	1115	1076	990	909	772	477	389	143			112		
220	917	902	898	794	768	591	143	278	92.3			40.2		
210	716	716	716	628	631	446	12.4	179	55.2					
200	573	573	582	490	508	335		102	18.3					
190	455	462	469	389	402	250		57.9						
180	376	384	389	325	310	189		12.4						
170	316	327	325	278	240	143								
160	271	281	276	235	191	113								
150	230	244	234	198	159	95.9								
140	191	210	200	161	139	84.4								
130	172	181	179	141	124	76.7								
120	161	163	165	132	114	64.0								
110	40.2	40.2	49.6	71.4	12.4	12.4								

ELECTRON DENSITY

	PUERTO RICO												60 W				16 DEC				1959
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100									
OVAL	F			F			F			A											
HMIN	194	198	195	231	297	246	260	229	112	109	110	108									
SCAT	45.9	40.5	31.2	77.3	64.2	55.4	54.2	33.1	38.2	39.7	37.7	46.7									
HMAX	297	291	254	391	425	382	380	296	269	286	271	277									
SHMAX	244	219	59	135	144	167	231	327	708	1166	1363	1359									
KM																					
430						165															
420						165															
410						163															
400						127	159														
390						127	153	203	310												
380						126	145	203	310												
370						125	134	201	307												
360						122	123	194	299												
350						118	109	185	286												
340						113	92.7	174	268												
330						107	76.3	158	244												
320						99.8	60.0	140	214												
310						91.6	45.3	121	177												
300	389	396			82.5	12.4	103	136	784												
290	386	396			72.7			84.9	101	778	1697										
280	375	389			63.0			68.6	71.4	739	1686 2310 1786										
270	353	370			53.9			53.5	45.0	667	1131	1616	2310	1776							
260	324	338	143	45.7	40.2			40.2			540	1151	1511	2258	1772						
250	286	295	143	35.0	12.4			12.4			335	1060	1341	2122	1632						
240	230	240	136	16.2							143	966	1155	1907	1500						
230	172	167	121									12.4	834	917	1595	1341					
220	115	97.2	102											679	699	1096	1130				
210	71.4	54.0	69.4											508	532	754	917				
200	40.2	12.4	35.0											362	403	540	716				
190																					
180																					
170																					
160																					
150																					
140																					
130																					
120																					
110																					

ELECTRON DENSITY

	PUERTO RICO				60 W				17 DEC 1959			
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A							S			F
HMIN	110	109	113	112	112	113	219	197	183	219	285	259
SCAT	60.4	56.0	57.3	57.0	57.1	50.3	39.6	35.5	61.0	55.7	51.0	43.7
HMAX	303	296	307	303	299	294	296	272	317	340	412	369
SHMAX	1589	1429	1538	1442	1297	1038	655	302	240	219	212	207
KM												
420												286
410												286
400												282
390												273
380												257
370												236 329
360												210 326
350											251	184 314
340											251	155 292
330											249	123 264
320										280	243	91.6 226
310	1712		1669	1612						279	232	65.7 179
300	1711	1612	1662	1610	1500	1341	1303			274	221	46.1 135
290	1693	1607	1630	1589	1490	1339	1294			266	203	16.3 97.2
280	1651	1578	1574	1544	1458	1315	1247		652	253	179	65.7
270	1586	1519	1450	1474	1402	1265	1159		651	238	149	43.9
260	1497	1450	1384	1375	1320	1184	1025		634	219	111	3.1
250	1387	1341	1250	1252	1218	1086	811	592	195	87.3		
240	1250	1202	1096	1112	1096	951	540	523				
230	1064	1050	943	944	943	794	262	424				
220	886	875	773	766	770	632	49.6	262				
210	730	716	631	608	596	477						
200	585	573	517	487	456	262						
190	471	459	428	399	351	275						
180	389	379	362	332	279	203						
170	326	321	305	281	228	154						
160	274	276	257	240	189	122						
150	230	234	212	204	158	102						
140	192	192	179	175	137	88.6						
130	170	171	157	155	122	79.9						
120	148	150	143	134	112	72.9						
110	12.4	49.6										

ELECTRON DENSITY

[illegible]

ELECTRON DENSITY

	PUERTO RICO					60 W				19 DEC 1959			
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	
QUAL		A	F			F	F	F	A	A	A	A	
HMIN	193	226	210	218	244	237	247	256			108	110	
SCAT	36.5	33.3	47.1	58.1	46.0	68.7	61.2	47.8			49.3	43.6	
HMAX	298	317	319	335	363	388	364	345			303	282	
SHMAX	162	161	189	186	180	218	134	290			1954	1525	
KM													
390						224							
380						223							
370						262	220	165					
360						262	215	165					
350						257	207	163	477				
340					240	246	197	158	476				
330					240	227	183	151	465				
320		323	286		236	203	168	144	445				
310		319	283		229	175	151	133	417				
300	286	300	274	218	143	134	120	373			2571		
290	282	270	259	203	114	117	103	310			2569		
280	268	223	238	185	87.4	99.9	84.9	240			2529	2294	
270	244	169	209	164	64.6	82.3	66.5	152			2430	2293	
260	209	119	175	138	48.0	64.4	47.4	49.6			2301	2252	
250	165	79.1	136	106	23.5	46.4	12.4				2096	2149	
240	125	51.0	97.2	73.6		12.4					1824	1989	
230	92.6	17.2	64.4	47.0							1491	1766	
220	68.1		42.2	7.4							1096	1486	
210	49.6										834	1118	
200	26.8										625	794	
190											477	477	
180											377	345	
170											310	275	
160											262	216	
150											222	177	
140											190	157	
130											156	144	
120											140	138	
110											133	132	
											97.2	71.4	

ELECTRON DENSITY

PUERTO RICO							60 W							19 DEC 1959						
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300								
QUAL		A		A	A	A		A												
HMIN	102		A					199	199	237	209	226	F18							
SCAT	59.7							45.5	69.6	35.7	40.6	54.2	44.4							
HMAX	312							297	333	310	308	352	348							
SHMAX	1981							957	766	315	271	297	306							
KM																				
360													389							
350													389	446						
340									854				384	443						
330									854				373	429						
320	2048								847	670			354	401						
310	2047								831	670	477		331	364						
300	2028							1569	807	656	472	299	318							
290	1979							1560	774	617	454	262	268							
280	1907							1515	732	550	422	222	219							
270	1793							1429	682	446	375	175	169							
260	1655							1303	619	321	310	132	125							
250	1503							1152	540	172	236	91.0	89.4							
240	1341							960	454	49.6	155	57.2	63.1							
230	1174							716	350		92.1	23.3	43.8							
220	1004							446	228		52.7		8.3							
210	834							179	112		6.1									
200	679							12.4	12.4											
190	540																			
180	427																			
170	348																			
160	290																			
150	240																			
140	200																			
130	173																			
120	157																			
110	147																			

ELECTRON DENSITY

	PUERTO RICO					60 W					20 DEC 1959				
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100			
QUAL			F	F	F	F	F		A						
HMIN	217	201	186	188	303	269	237	187	107	110	108	108			
SCAT	44.4	35.6	42.7	23.0	50.3	58.8	47.7	42.8	42.1	42.6	37.9	48.9			
HMAX	316	277	255	235	401	377	331	303	282	286	281	286			
SHMAX	352	307	85	35	100	142	135	290	753	1176	1389	1619			
KM					148										
410					148										
400					146										
390					141	184									
380					133	183									
370					122	180									
360					109	173									
350					92.4	166	214								
340					75.0	156	214								
330					57.4	142	211								
320	608				40.2	125	203	469							
310	605					105	190	468							
300	588					83.8	174	458	1143	1756	2177	2128			
290	556					60.0	152	434	1142	1748	2176	2120			
280	508	670				12.4	123	400	1118	1696	2130	2071			
270	446	663					88.2	350	1063	1597	2005	1979			
260	344	631	161				56.9	286	975	1456	1811	1856			
250	219	573	160				19.6	219	842	1240	1513	1655			
240	118	485	155	112				152	679	1004	1201	1399			
230	64.6	335	146	110				105	518	716	917	1096			
220	19.9	179	134	99.9				71.4	377	508	630	834			
210		64.4	119	77.9				47.2	262	362	463	608			
200			89.8	51.1				12.4	184	275	367	466			
190			45.4	12.4					130	214	310	381			
180									97.2	161	262	324			
170									85.2	135	222	283			
160									81.3	125	185	248			
150									78.3	121	160	215			
140									75.4	117	153	187			
130									72.5	113	147	169			
120									45.1	12.4	97.2	127			
110															

ELECTRON DENSITY

	PUERTO RICO					60 W					20 DEC 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300			
QUAL	A														
HMIN	112	110	111	112	109	113	205	181	194	239	269	261			
SCAT	55.6	59.2	57.4	52.1	49.8	50.3	49.0	42.0	44.2	44.7	56.0	61.9			
HMAX	289	303	309	314	309	285	310	295	296	325	395	387			
SIMAX	1530	1583	1577	1483	1405	1093	726	434	301	170	219	292			
KM											280				
400											279	362			
390											274	361			
380											265	355			
370											251	345			
360											233	330			
350											210	312			
340											185	288			
330					1669		1072				285	156	255		
320			1756	1697	1666	1697	1072				278	122	214		
310			1755	1687	1639	1682	1061	716	500		264	89.5	164		
300	1876	1734	1650	1581	1633	1500	1027	714	498		243	65.1	116		
290	1865	1689	1588	1488	1548	1497	967	693	483		215	44.4	76.5		
280	1823	1622	1499	1368	1428	1468	890	651	457		179	2.8	45.6		
270	1748	1555	1388	1224	1276	1404	794	591	417		135				
260	1653	1414	1240	1066	1119	1320	679	508	362	86.9					
250	1519	1240	1085	902	929	1159	540	417	286	40.2					
240	1341	1023	917	750	743	1050	402	310	207						
230	1100	818	754	617	590	848	240	208	127						
220	834	643	620	508	463	643	83.8	127	71.4						
210	608	524	500	422	370	466		76.3	40.2						
190	446	434	414	354	305	279		45.6							
180	362	369	354	300	254	195									
170	299	318	310	256	212	152									
160	258	274	270	219	179	125									
150	227	233	234	193	152	108									
140	198	195	200	172	133	95.0									
130	174	171	174	155	122	86.8									
120	143	139	148	131	114	55.7									
110					40.2										

ELECTRON DENSITY

PUERTO RICO												21 DEC 1959				
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100				
QUAL																
HMIN	216	208	181	196	251	253	274	227	108	108	109	104				A
SCAT	28.7	26.0	35.1	70.9	75.4	53.7	64.3	48.0	38.9	47.5	40.4	51.9				
HMAX	291	268	254	322	390	348	389	302	265	284	280	284				
SHMAX	177	190	90	108	126	88	151	282	594	1177	1337	1483				
KM																
400					127											
390					127		179									500
380					126		178									500
370					125		175									493
360					122		170									540 469
350					118	127	162									540 430
340					113	126	152									532 378
330					119	107	123	142								679 531 513 316
320					119	99.8	118	127								675 521 477 240 652
310					118	91.5	111	112	524							653 500 429 143 652
300	432				116	81.8	101	92.0	524							612 471 369 87.9 640
290	432				113	71.4	89.2	71.4	516	1612	2096	1876				551 430 292 53.4 613
280	417				108	60.0	75.7	49.6	499	1609	2096	1873				467 375 211 12.4 567
270	376	540			103	47.8	60.0		481	960	1576	2065	1842			362 302 127 508
260	310	526	189	97.8	29.3	41.3			430	957	1508	1969	1774			240 198 71.4 427
250	219	477	188	89.6					335	926	1400	1813	1684			127 83.8 26.8 310
240	121	377	181	80.2					179	864	1251	1586	1555			40.7 192
230	69.0	228	167	68.3				44.7	767	1078	1289	1353				112
220	26.8	97.2	147	54.0					634	834	897	1096				60.0
210		23.7	112	41.0					488	632	643	834				12.4
200			74.4	12.4					344	458	456	643				
190			45.0						240	335	355	477				
180									168	262	286	381				
170									127	209	229	318				
160									104	170	179	273				
150									82.1	142	154	235				
140									78.9	127	141	201				
130									75.8	122	136	176				
120									72.7	117	130	163				
110									60.0	112	97.2	127				

ELECTRON DENSITY

PUERTO RICO												21 DEC 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300				
QUAL	A	A	A	A	A	A	A	A	A	A	F	A				
HMIN	110										227	232	236	268	198	
SCAT	47.6										42.4	50.8	44.0	40.2	44.5	
HMAX	280										317	325	340	370	302	
SHMAX	1163										383	339	330	286	389	
KM																
380																500
370																500
360																493
350																540 469
340																540 430
330																532 378
320																679 531 513 316
310																675 521 477 240 652
300																653 500 429 143 652
290																612 471 369 87.9 640
280																551 430 292 53.4 613
270																467 375 211 12.4 567
260																362 302 127 508
250																240 198 71.4 427
240																127 83.8 26.8 310
230																40.7 192
220																112
210																60.0
200																12.4
190																
180																
170																
160																
150																
140																
130																
120																
110																

ELECTRON DENSITY

PUERTO RICO												22 DEC 1959				
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100				
QUAL		F	F		F	F	F									
HMIN	207	196	206	199	248	257	213	218	110	110	109	106				
SCAT	46.4	35.0	35.5	26.2	48.0	59.3	53.7	39.4	46.2	46.7	48.4	40.1				
HMAX	291	274	279	256	353	378	334	295	290	287	285	263				
SHMAX	305	223	156	70	90	1.3	148	262	863	1159	1428	1095				
KM																
380						189										461
370						188										461
360						131	184									457
350						131	178									442
340						129	168	193								410 420
330						122	158	193								409 389 446
320						113	143	190								403 347 446 540
310						102	127	184								393 297 441 537
300	540				89.9	107	174	516	1167							376 235 426 524
290	540				78.0	87.9	162	514	1167	1555	1815					358 150 403 499
280	533	484	335		66.2	67.9	145	497	1154	1546	1810					333 75.8 374 466
270	514	482	330		56.4	47.7	125	463	1114	1503	1771	1669				329 417
260	484	464	312	193	42.0	12.4	104	417	1050	1418	1692	1666				268 349
250	440	425	281	191	8.7		83.8	340	952	1290	1578	1624				205 262
240	367	367	235	174			64.2	240	834	1155	1420	1528				137 161
230	262	286	161	146			47.2	118	679	976	1240	1385				71.4 89.6
220	127	143	83.8	97.2			22.7	26.8	540	794	1034	1169				49.6
210	40.2	71.4	40.2	54.1					318	446	643	654				
200		27.5	5.5						240	335	490	477				
190									185	266	381	379				
180									143	214	310	321				
170									112	174	262	280				
160									96.1	143	221	245				
150									90.3	126	189	214				
140									84.5	120	166	187				
130									73.0	115	152	171				
120									40.2	97.2	112					
110																

ELECTRON DENSITY

	PUERTO RICO					60 W					22 DEC 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300			
QUAL	A	A	A	S	A	A	A	A	A	F					
HMIN	109	108	111	110	110	112	207	186	197	282	231	221			
SCAT	449	54	758	70	54	9	45	7	65	50	50	50			
HMAX	272	298	335	329	300	298	302	306	347	380	332	327			
SHMAX	1049	1087	1375	1483	1142	958	693	445	373	307	295	347			
KM															
390											461				
380											461				
370											457				
360											442				
350										410	420				
340			1240							409	389	446			
330			1238	1393						403	347	446	540		
320			1226	1387						393	297	441	537		
310			1203	1368	1341		1131			661	376	235	426 524		
300			1084	1167	1331	1341	1252	1130	658	558	150	403	499		
290			1079	1120	1276	1331	1243	1112	639	333	75	374	466		
280	1341		1055	1044	1217	1299	1205	1067	60	303		329	417		
270	1340	1009	993	1150	1244	1138	995	556	266			268	349		
260	1318	951	904	1050	1169	1043	897	495	225			205	262		
250	1264	882	802	929	1070	917	773	417	185			137	161		
240	1173	803	688	794	942	776	619	341	148			71.4	89.6		
230	1061	725	573	657	794	630	466	262	112				49.6		
220	917	650	468	540	630	495	216	180	80.9						
210	822	579	383	442	485	388	49.6	122	52						
200	624	513	322	368	373	298		71.4	17.5						
190	501	451	282	315	295	232		28.2							
180	405	393	252	275	240	184									
170	335	339	214	245	204	149									
160	289	291	179	217	174	124									
150	247	250	165	190	151	107									
140	210	211	156	169	134	95.3									
130	179	178	150	156	123	87.4									
120	166	162	143	146	115	71.4									
110	71.4	60.0		12.4	40.2										

ELECTRON DENSITY

	PUERTO RICO					60 W					23 DEC 1959				
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100			
QUAL			F	F	F	F	F								
HMIN	208	195	189	250	341	273	186	240	110	109	109	108			
SCAT	32.7	26.0	60.5	64.7	64.5	51.8	68.6	42.4	29.4	44.1	50.9	49.9			
HMAX	282	249	295	404	466	397	330	325	262	278	294	288			
SHMAX	214	103	163	249	180	217	253	280	584	968	1356	1320			
KM															
470					208										
460					208										
450					205										
440					200										
430					192										
420					182										
410				268	168										
400				268	153	292									
390				265	136	290									
380				259	117	283									
370				249	97.2	271									
360				236	71.4	252									
350				221	46.2	229									
340				202		201	268								
330				179		171	268	516							
320				156		139	267	514							
310				132		106	262	498							
300			208	108		76.5	255	472			1741				
290	477		208	85.8		51.7	245	429			1738	1626			
280	476		205	66.3		27.1	231	369		1393	1708	1616			
270	461		199	49.6			216	286	1072	1381	1642	1575			
260	422		189	31.4			197	173	1071	1332	1564	1496			
250	362	304		178			176	71.4	1019	1245	1421	1395			
240	280	295	163				152		917	1143	1240	1255			
230	179	266	147				127		770	960	960	1115			
220	83.8	208	130				102		608	754	741	932			
210	23.0	104	109				77.8		446	559	558	745			
200		45.8	80.7				53.9		310	406	434	573			
190			12.4				22.6		219	304	355	435			
180									165	240	295	343			
170									127	195	240	286			
160									103	161	192	240			
150									94.1	138	158	198			
140									89.4	125	143	174			
130									84.7	120	137	159			
120									70.2	114	131	150			
110									12.4	83.8	83.8	97.2			

ELECTRON DENSITY

PUERTO RICO					60 W					23 DEC 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300		
QUAL			A	A	A									
HMIN	110					111	116	208	198	218	281	243	217	
SCAT	52.8					50.9	70.4	46.5	52.5	54.6	49.1	43.1	46.5	
HMAX	314					314	342	316	346	341	403	344	312	
SHMAX	1408					1540	1657	899	795	605	581	513	512	
KM														
410											844			
400											843			
390											830			
380											800			
370											750			
360											685			
350						1569		1050	844	603	896			
340						1569		1046	844	508	894			
330						1557		1024	836	400	872			
320						1846	1530	1367	981	814	286	824	875	
310	1555					1843	1486	1362	923	777	172	754	874	
300	1555					1811	1424	1322	842	727	97.2	656	860	
290	1534					1734	1349	1254	741	661	49.6	519	824	
280	1486					1632	1258	1161	632	573		335	772	
270	1407					1497	1154	1043	508	470		198	690	
260	1309					1341	1038	899	389	335		97.2	573	
250	1174					1168	917	734	273	198		49.6	417	
240	1035					976	794	573	184	105		240		
230	884					770	661	389	118	57.9		97.2		
220	736					589	529	161	78.5	12.4		33.5		
210	608					461	417	40.2	49.6					
200	513					362	310		12.4					
190	437					294	233							
180	375					240	174							
170	324					201	138							
160	282					166	114							
150	240					141	97.2							
140	203					127	85.0							
130	179					119	77.6							
120	167					112	67.6							
110	40.2													

ELECTRON DENSITY

	PUERTO RICO						60 W				24 DEC 1959			
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100		
QUAL							A		A					
HMIN	193	192	217	218	301	290	208	219	111	110	110	109		
SCAT	48.8	35.5	105	111	61.3	56.2	60.6	32.8	34.5	40.1	53.6	53.2		
HMAX	279	268	407	396	432	413	350	282	266	255	280	285		
SHMAX	378	112	215	169	126	134	221	236	596	761	1045	1248		
KM														
440					148									
430					148									
420					146	170								
410				156	143	170								
400				156	123	137	167							
390				155	123	130	162							
380				154	122	120	154							
370				151	121	109	144							
360				148	120	95.9	131	257						
350				145	118	81.6	115	257						
340				140	115	67.8	97.2	2						
330				135	112	54.8	79.7	250						
320				129	108	43.6	63.1	241						
310				123	104	22.8	48.9	227						
300				116	101		30.7	211						
290				108	96.3			192	573		1215	1446		
280	679		99.1	90.5				170	573		1215	1443		
270	673	229	89.4	84.7			146	553	1096		1205	1417		
260	654	226	79.5	77.4			119	510	1088	1240	1173	1366		
250	611	213	69.3	69.3			93.7	432	1037	1235	1120	1287		
240	555	194	58.1	60.0			71.4	298	943	1198	1050	1185		
230	484	161	44.2	47.1			53.5	127	776	1122	949	1060		
220	335	123	12.4	12.4			40.2	12.4	573	1004	834	917		
210	143	81.4					5.8		380	834	716	754		
200	56.5	45.1							252	608	608	625		
190									172	417	494	508		
180									127	286	389	412		
170									95.9	223	305	340		
160									83.8	181	253	286		
150									80.8	147	217	244		
140									77.8	126	182	211		
130									74.8	120	159	184		
120									71.7	114	146	166		
110										40.2	40.2	71.6		

ELECTRON DENSITY

	PUERTO RICO					60 W					25 OEC					1959
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500
QUAL	J															
HMIN	210	203	231	222	188	195	235	258	108	104	107	100				
SCAT	46.9	35.5	37.8	41.1	59.3	58.6	54.3	39.7	44.8	34.4	49.7	92.8				
HMAX	321	282	324	304	301	358	372	331	283	268	273	324				
SHMAX	214	143	181	183	125	190	193	256	935	1286	1372	1970				
FM							240									
380							240									
370							240									
360							208	237								
350							208	230								
340							204	219	516							
330	323		329				196	203	516							1583
320	322		328				186	183	504							1582
310	318		317	342	161		173	161	477							1574
300	306		293	341	161	157	136	435								1556
290	286	298	260	332	159	140	110	373	1354							1529
280	260	298	219	313	156	122	88.6	280	1353				1786	1493		
270	226	290	173	287	150	104	69.7	143	1327	2227			1784	1466		
260	185	270	123	244	142	87.9	55.7	30.0	1268	2198	1753	1373				
250	143	240	71.4	185	132	74.3	43.1		1176	2077	1687	1295				
240	101	193	43.7	112	121	62.4	15.7		1050	1868	1588	1223				
230	66.5	134		49.6		105	52.4		856	1555	1446	1164				
220	42.7	71.4			83.8	44.0			643	1206	1266	1121				
210		40.2			61.2	30.0			466	875	1074	960				
200					43.3	10.4			341	608	834	754				
190					8.4				256	417	643	591				
180									202	318	466	469				
170									165	251	347	381				
160									137	201	275	316				
150									117	165	229	262				
140									103	141	192	221				
130									93.5	126	168	191				
120									87.0	119	153	172				
110									60.0	113	127	143				

ELECTRON DENSITY

[illegible]

ELECTRON DENSITY

	PUERTO RICO					60 W					26 DEC 1959				
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100			
QUAL	S														A
HMIN	235	194	197	213	252	232	211	222	111	113	116	117			11
SCAT	38.9	55.7	62.3	50.9	61.8	76.3	49.4	29.9	38.2	48.9	37.2	55.1			17
HMAX	311	304	328	337	414	416	315	284	264	296	270	299			29
SXMAX	241	204	204	190	218	301	205	215	620	1162	1067	1467			17
KM															
420					235	280									
410					234	279									
400					232	277									
390					226	272									
380					217	264									
370					204	255									
360					189	242									
350					172	229									
340				257	152	214									
330			240	255	132	193									
320	477	280	239	249	113	168	310								
310	477	280	235	238	93.6	142	309								
300	467	279	228	222	76.8	117	303								
290	441	275	218	201	62.4	94.1	290	548			1528				1727
280	400	267	203	176	50.5	75.6	271	546			1486	1801	1678		
270	340	253	187	147	41.0	60.0	247	519	1027	1414	1801	1613			
260	272	238	168	119	19.3	48.9	211	465	1024	1318	1767	1517			
250	143	215	147	93.2		38.8	166	362	909	1183	1669	1399			
240	49.6	186	121	68.8		16.8	118	219	925	1004	1055	1249			
230		149	99.1	49.6					823	776	1273	1050			
220		106	69.2	26.8					77.2	83.8					
210							45.6		679	598	875	865			
200		66.1	47.7						508	462	620	679			
190		35.9	12.4						362	362	446	529			
180									248	286	352	402			
170									179	232	286	316			
160									135	183	237	256			
150									108	147	194	209			
140									91.5	131	168	149			
130									81.9	123	145	149			
120									76.9	117	135	137			
									72.0	105	112	121			

ELECTRON DENSITY

	PUERTO RICO					60 W					26 DEC 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300			
QUAL	A					A									
HMIN	116	111	114	114	115	112	209	207	206	221	231	105			
SCAT	54	61	65	56.6	63.3	58.5	44.0	57.1	47.2	38.6	42.6	74.2			
HMAX	288	331	331	325	325	306	307	346	324	325	319	247			
SHMX	1160	1619	1619	1662	1610	1271	873	809	563	479	424	317			
KM															
350						1050									
340	1466 1612					1046									
330	1466 1611					1028					834	854			
320	1435 1597					1013					993		794		
310	1407 1561 1710					1615 1683 1487					944	816	821	785	
300	1361 1495					1651 1574 1678 1477					785	779	760	754	
290	1354	1294	1419	1563	1504	1643	1424	788	727	679	705				
280	1346	1216	1320	1455	1422	1575	1341	679	658	573	626				
270	1315	1118	1203	1328	1323	1470	1221	540	581	446	508				
260	1165	1083	1131	1208	1190	1341	1050	417	490	310	335	1208			
250	1175	899	938	1041	1096	143	934	286	379	179	161	310			
240	1083	794	786	875	950	960	586	179	247	92.9	65.3	309			
230	960	697	643	737	801	716	323	107	135	49.6		306			
220	834	614	540	615	643	523	134	60.0	68.8			291			
210	701	547	455	508	496	383	12.6	18	27.5			200			
200	587	493	389	425	395	277						190			
190	493	446	335	353	301	198						180			
180	411	398	294	297	243	153						170			
170	341	348	256	253	201	122						160			
160	286	293	219	216	168	102						150			
150	237	247	179	186	143	89.5						140			
140	194	208	161	163	126	81.6						130			
130	170	176	152	152	118	76.8						120			
120	143	161	138	135	97.2	71.9						110			
110						</td>									

ELECTRON DENSITY

ELECTRON DENSITY

PUERTO RICO											
60 W											
27 DEC 1959											
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1100
QUAL	A		A	A	A					A	
HMIN	195	214	289	259	281	223	238	229	110		113 110
SCAT	43.6	42.2	66.7	63.0	56.3	38.6	34.8	40.7	28.9		42.7 52.7
HMAX	319	323	404	417	417	308	324	310	282		280 293
SHMAX	222	191	236	264	284	197	168	271	683		1511 1580
KM											
420				286	355						
410			280	285	353						
400			280	281	347						
390			277	273	334						
380			271	261	316						
370			261	245	292						
360			250	227	262						
350			238	205	230						
340			219	181	192						
330		304	192	156	151		335				
320	335	303	161	131	112		334	508			
310	331	297	123	106	78.7	382	322	508			
300	319	280	88.0	84.9	55.0	378	295	501			1846
290	296	256	45.4	66.6	34.5	362	255	478	1096		
280	266	224		51.2		333	206	441	1095		2243 1844
270	228	188		35.5		290	149	389	1050		2211 1752
260	184	150		2.5		227	92.6	315	932		2109 1669
250	143	114				153	53.8	219	822		1956 1540
240	108	78.9				79.8	12.4	118	695		1741 1376
230	81.0	53.5				43.8			564		1475 1208
220	60.0	26.4							446		1143 1027
210	44.3								351		834 847
200	15.8								281		608 679
190									224		428 551
180									173		329 437
170									129		267 344
160									101		219 280
150									88.1		179 232
140									79.3		155 192
130									72.1		138 163
120									65.0		122 152
110									12.4		60.0

PUERTO RICO											
60 W											
27 DEC 1959											
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2300
QUAL	A	A	A	A	A	A	A	A	A	A	A
HMIN	108	108				114	223	192	207	225	230 211
SCAT	66.9	59.4				88.2	55.1	51.1	49.1	44.4	40.2 34.2
HMAX	319	322				363	332	325	326	314	333 298
SHMAX	1862	1629				2257	1302	989	762	466	402 297
KM											
370											1861
360											1860
350											1850
340											1828 1815
330			1612								1795 1815
320	1727	1611									1749 1793
310	1718	1596									1691 1742
300	1690	1559									1619 1661
290	1643	1488									1541 1555
280	1577	1406									1446 1411
270	1487	1305									1341 1240
260	1380	1172									1214 1027
250	1260	1042									1085 754
240	1128	917									917 417
230	1004	805									754 143
220	875	697									573
210	754	600									431
200	648	514									310
190	554	439									214
180	468	371									156
170	389	310									121
160	324	268									99.6
150	273	227									86.0
140	229	158									80.0
130	192	141									75.3
120	172	134									63.8
110	143	118									

ELECTRON DENSITY

ELECTRON DENSITY

PUERTO RICO											
60 W											
28 DEC 1959											
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1100
QUAL		F	F	F				F			A
HMIN	198	197	211	193	305	294	238	209	110	109	109 106
SCAT	45.7	51.6	45.7	72.4	59.0	60.9	38.2	41.3	42.6	35.3	43.8 55.9
HMAX	302	316	288	351	436	434	333	308	279	280	277 296
SHMAX	239	224	136	133	138	164	172	445	956	1288	1448 1641
KM											
440					165	189					
430					165	188					
420					162	186					
410					156	181					
400					148	173					
390					139	163					
380					127	151					
370					113	135					
360				131	97.2	119					
350				131	81.4	101					
340				130	66.0	82.6	310				
330				128	51.6	66.4	309				
320		310		125	38.8	52.3	301				
310	382	309		120	12.4	40.9	280	814			
300	382	302		115		15.1	250	806			1846
290	376	290	240	107			211	776	2128		1841
280	360	271	238	98.4			165	723	1500	2128	2063 1809
270	335	248	231	88.4			117	643	1482	2089	2051 1747
260	302	219	217	78.2			77.2	525	1423	1962	1988 1655
250	260	183	200	68.1			49.6	362	1320	1759	1867 1536
240	202	143	175	58.5			12.4	206	1181	1463	1699 1385
230	143	105	140	49.6				112	960	1181	1475 1213
220	90.3	71.4	83.8	42.9				58.2	695	891	1206 1019
210	55.3	47.7		29.6				4.9	477	627	939 834
200	12.4	12.4		12.4					318	446	679 664
190									225	324	496 540
180									173	252	375 442
170									140	203	298 362
160									118	167	250 305
150									102	141	217 256
140									92.4	125	185 216
130									85.2	120	160 182
120									75.7	115	149 162
110									12.4	60.0	83.8 127

PUERTO RICO					60 W					28 DEC 1959				
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300		
OUAL	A					A		A		A				
HMIN	112	113	110	111	112			220	199	229	224	234		
SCAT	59.8	58.3	69.2	55.8	60.5			43.5	50.4	56.2	49.9	41.6		
HMAX	311	323	352	329	336			316	308	372	343	321		
SHMAX	1717	1765	2160	2016	2056			973	619	553	466	420		
KM														
380										697				
370										697				
360			1907							690				
350			1906							671	679			
340			1891		2096					643	678			
330		1801	1857	2161	2091					600	667	794		
320	1786	1799	1802	2146	2060			1697		548	643	793		
310	1786	1777	1724	2097	1992			1689	960	484	603	779		
300	1771	1728	1632	2011	1907			1639	954	407	551	741		
290	1732	1651	1519	1894	1786			1543	930	328	483	679		
280	1669	1549	1384	1740	1652			1411	887	248	398	594		
270	1575	1423	1240	1555	1495			1216	829	175	310	460		
260	1460	1267	1072	1365	1321			960	730	118	219	262		
250	1326	1126	917	1171	1154			643	596	77.3	127	112		
240	1172	960	786	982	982			310	438	48.1	74.2	49.6		
230	1016	804	679	807	824			104	286	16.1	40.2			
220	860	673	593	667	679									
210	716	564	522	551	552				78.8					
200	601	477	462	453	435				12.4					
190	497	417	408	372	342									
180	409	362	355	307	262									
170	335	310	304	256	206									
160	284	270	258	217	167									
150	240	236	219	190	140									
140	182	207	190	169	125									
130	168	189	174	154	119									
120	139	168	163	144	112									
110			40.2											

ELECTRON DENSITY

	PUERTO RICO					60 W					29 DEC 1959				
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100			
QUAL					A								A		
HMIN	213	191	209	234	274	298	230	233	113	112	111				
SCAT	30.7	49.8	62.7	51.4	102	72.0	44.6	45.2	32.9	36.5	46.0				
HMAX	277	301	328	324	459	431	341	329	281	267	264				
SHMAX	222	204	226	124	259	217	194	335	920	1235	1121				
KM															
460					198										
450					198										
440					197	235									
430					194	235									
420					191	233									
410					187	230									
400					182	224									
390					176	216									
380					169	207									
370					163	196									
360					154	181									
350					143	161	298								
340					131	136	298								
330															
320			280	189	117	108	293		557						
310			279	188	100	81.4	280	551							
300		298	274	185	82.4	55.0	262	529							
290		298	266	178	63.3	12.4	233	495							
280		294	254	167	46.3		201	451	1583						
270	565	285	242	155	19.4		165	389	1583						
260	557	269	223	138			127	302	1540	2161	1612				
250	521	248	198	114			89.7	219	1425	2142	1608				
240	453	221	164	83.8			60.0	120	1260	2046	1572				
230	335	186	127	52.0			40.2	53.5	1004	1866	1498				
220	161	146	89.7						794	1593	1382				
210	57.1	105	53.1						594	1274	1224				
200		68.6	5.8						417	917	1037				
190		43.7							300	573	794				
180									161	262	377				
170									124	207	297				
160									101	168	245				
150									87.4	142	205				
140									80.9	126	176				
130									76.8	120	158				
120									72.7	114	148				

ELECTRON DENSITY

PUERTO RICO						60 W				29 DEC 1959			
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
QUAL	A		A		A	S							
HMIN	110	109				108	198	195	198	232	218	187	
SCAT	47.6	59.2				56.1	51.3	51.9	50.5	48.1	54.0	51.0	
HMAX	287	302				328	309	307	317	324	334	318	
SHMAX	1300	1494				1778	1249	798	457	331	301	262	
KM													
340	417												
330	2096												
320	2086												
310	2044 1937 1119 616 539 397 352												
300	1555 1555 1969 1924 1114 599 508 376 343												
290	1555 1538 1857 1873 1089 573 477 349 326												
280	1547 1499 1717 1786 1042 532 428 314 304												
270	1506 1437 1543 1669 978 482 362 262 274												
260	1429 1354 1341 1506 886 426 277 210 240												
250	1325 1255 1164 1279 773 362 179 153 198												
240	1179 1124 857 960 643 299 71.4 101 153												
230	1018 995 643 508 508 236 57.1 112												
220	861 861 465 198 465 198 12.4 83.0												
210	716 716 367 63.8 240 112 60.0												
200	600 594 262 12.4 97.2 49.6 43.6												
190	508 477 206 167												
180	431 394 167												
170	362 335 138												
160	306 294 116												
150	266 257 101												
140	219 219 92.0												
130	179 179 85.0												
120	168 169 72.6												
110	49.6 97.2 49.6												

ELECTRON DENSITY

	PUERTO RICO				60 W				31 DEC 1959			
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A				A				A			
HMIN	110	109	109	111	109	110		197	198			221
SCAT	47.4	56.0	63.0	51.9	59.0	54.2		49.4	47.7			51.1
HMAX	300	307	322	307	321	324		310	310			347
SHMAX	1410	1594	1760	1436	1507	1611		672	450			346
KM												
350												484
340												482
330			1669		1555	1907						471
320			1668		1555	1904		1004	688			450
310	1640	1683	1654	1612	1542	1875		1004	688			420
300	1640	1676	1618	1604	1506	1813		995	680			381
290	1620	1644	1562	1567	1446	1714		965	657			332
280	1564	1586	1479	1493	1358	1591		917	618			270
270	1470	1496	1381	1400	1258	1432		843	565			205
260	1341	1386	1265	1277	1143	1240		746	495			143
250	1193	1211	1143	1143	1029	1089		625	405			97.2
240	1040	1105	1017	981	917	834		497	310			63.4
230	875	933	891	826	785	643		347	198			40.2
220	741	777	771	691	652	477		198	120			
210	629	652	661	573	532	362		106	63.4			
200	549	551	562	484	417	286		40.2	12.4			
190	487	477	477	404	325	219						
180	427	414	405	335	251	175						
170	335	362	344	279	193	143						
160	248	315	293	232	164	121						
150	179	272	255	196	145	106						
140	162	237	226	172	140	95.9						
130	154	209	202	157	134	90.5						
120	147	188	184	148	127	85.1						
110	49.6	97.2	71.4		83.8	40.2						

AVERAGE ELECTRON DENSITY													KP BELOW 4.5	
60 W													DEC 1959	
PUERTO RICO														
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100		
COUNT	28	28	29	28	29	24	23	24	26	24	26	24		
HMIN	219	222	213	219	257	246	230	221	110	109	110	109		
RATIO	5.8	6.5	5.8	5.2	4.4	4.4	4.9	6.5	5.5	5.1	5.0	4.7		
SCAT	46.6	40.3	49.2	61.1	62.1	60.1	55.3	41.3	39.3	43.3	44.4	49.9		
NMAX	384	349	266	200	192	206	235	548	1291	1787	1991	1880		
HMAX	320	311	309	340	385	377	347	306	276	281	282	287		
SHMAX	231	185	162	161	163	173	173	290	822	1217	1412	1477		
SHINF	1315	1169	912	726	704	753	836	1836	4465	6258	7029	6780		
KM	26.6	23.4	18.0	17.0	19.4	19.6	18.9	36.1	73.9	104	117	113		
950	34.1	30.0	29.0	21.8	24.9	25.1	24.2	46.3	94.9	134	150	145		
850	43.7	38.4	23.5	27.9	31.9	32.1	31.0	59.4	122	171	192	186		
800	56.0	49.3	37.8	35.7	40.8	41.2	39.7	76.1	156	220	246	238		
750	91.7	83.1	48.4	45.4	52.1	52.6	50.8	97.5	200	282	315	305		
700	91.8	60.6	61.9	57.6	66.1	66.9	64.9	125	256	361	404	390		
650	117	103	78.9	72.5	83.5	84.7	82.5	159	327	461	516	499		
600	148	130	100	90.3	104	106	104	202	417	587	657	635		
550	187	164	126	111	128	131	130	255	528	743	832	803		
500	232	204	156	134	152	159	160	318	663	934	1044	1007		
450	242	213	163	139	157	164	166	332	693	976	1091	1052		
400	252	221	169	144	161	169	172	346	724	1019	1140	1098		
350	262	230	176	148	165	174	179	360	756	1063	1189	1146		
300	272	239	183	153	169	179	185	375	789	1109	1240	1194		
250	282	248	189	158	173	184	191	389	822	1155	1292	1243		
200	292	257	196	162	176	188	197	404	856	1203	1345	1293		
150	302	266	203	166	178	192	202	419	891	1251	1399	1344		
100	312	275	210	170	179	195	208	434	925	1299	1453	1395		
50	322	284	216	174	180	198	213	448	960	1348	1507	1446		
0	331	292	222	177	179	199	217	462	995	1396	1561	1496		
390	340	300	228	179	177	200	221	476	1030	1444	1614	1546		
380	348	308	233	181	174	199	225	489	1064	1492	1667	1595		
370	356	314	238	182	169	197	227	501	1098	1537	1718	1642		
360	362	319	242	183	163	192	228	512	1130	1581	1767	1686		
350	368	324	245	182	155	184	227	522	1160	1623	1813	1728		
340	371	326	248	180	144	175	225	530	1189	1661	1855	1765		
330	373	327	248	177	134	163	220	536	1215	1695	1893	1798		
320	371	326	248	173	122	149	212	538	1237	1725	1926	1826		
310	365	322	245	168	109	132	200	536	1256	1750	1953	1848		
300	354	314	240	160	93.8	115	185	527	1271	1768	1972	1861		
290	338	301	231	151	82.3	97.7	167	508	1279	1777	1992	1854		
280	313	282	221	140	70.1	81.9	147	477	1279	1777	1977	1860		
270	280	256	208	127	56.8	63.8	123	427	1259	1733	1942	1808		
260	238	221	190	111	44.4	46.6	97.6	356	1209	1655	1858	1729		
250	187	182	168	93.2	33.0	31.5	75.2	269	1123	1525	1720	1612		
240	135	140	141	73.8	24.5	22.5	50.7	177	992	1350	1526	1452		
230	88.4	92.6	107	53.4	15.5	16.1	32.2	92.5	922	1127	1281	1252		
220	48.3	51.3	71.7	34.9	9.0	10.1	20.1	36.1	642	887	1016	1025		
210	16.3	24.5	37.5	21.0	4.5	4.1	8.4	15.0	473	778	806			
200	6.0	7.8	16.8	6.8	1.9	.5		8.4	341	493	587	627		
190			4.7	1.3			2.1	5.3	246	368	447	489		
180							.1	3.9	184	283	351	394		
170								3.3	143	224	283	325		
160								2.8	117	182	233	272		
150								2.5	101	152	194	231		
140								2.2	92.4	134	166	197		
130								2.0	85.7	124	152	175		
120								1.3	76.9	117	141	158		
110								.2	15.6	54.6	62.7	80.4		

AVERAGE ELECTRON DENSITY													KP BELOW 4.5	
60 W													DEC 1959	
PUERTO RICO														
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300		
COUNT	24	20	21	19	22	15	23	26	26	25	25	28		
HMIN	110	110	111	111	111	112	211	200	204	230	226	217		
RATIO	4.2	3.9	3.9	4.0	4.0	4.5	5.5	5.4	5.1	5.5	5.5	5.8		
SCAT	54.1	57.9	59.4	59.0	59.4	54.3	49.0	47.7	51.4	46.7	47.1	44.7		
NMAX	1631	1609	1627	1628	1612	1613	1470	989	663	571	516	461		
HMAX	297	310	317	316	317	312	312	309	324	336	335	318		
SHMAX	1455	1549	1592	1560	1510	1351	946	645	464	363	324	273		
SHINF	6057	6088	6180	6153	6057	5901	5093	3435	2335	1975	1779	1572		
KM	950	103	108	114	113	113	111	101	66.8	47.9	44.5	39.1	32.2	25
900	132	139	146	145	145	143	129	85.6	61.4	57.0	50.1	41.2	34.1	28
850	170	178	186	186	186	183	165	110	78.7	73.1	64.2	52.9	41.1	25
800	218	228	240	239	238	235	212	141	101	93.6	82.3	67.8	54.5	22
750	279	293	307	306	305	300	272	180	129	120	105	86.8	69.9	19
700	357	374	392	391	390	384	348	231	165	153	135	111	94.4	16
650	456	477	500	498	496	490	443	294	210	195	171	141	74.4	13
600	580	606	635	632	630	621	563	373	267	246	217	179	60.4	10
550	732	764	799	796	793	783	709	471	335	308	272	226	179	8
500	916	953	993	991	986	973	883	587	416	379	335	280	226	6
450	1126	1165	1209	1207	1201	1186	1077	717	504	455	404	341	280	4
400	1170	1209	1253	1252	1244	1229	1117	744	521	470	417	353	280	3
350	1254	1292	1297	1296	1288	1272	1157	771	539	484	430	365	280	2
300	1259	1296	1340	1339	1330	1315	1196	797	556	497	443	377	280	1
250	1303	1338	1382	1382	1372	1356	1234	823	572	510	455	389	280	0
200	1346	1380	1423	1423	1412	1396	1272	849	588	522	466	400	280	-1
150	1388	1419	1461	1462	1450	1434	1307	873	603	533	477	410	280	-2
100	1429	1457	1497	1498	1486	1470	1341	896	616	541	485	420	280	-3
50	1467	1492	1529	1531	1518	1503	1371	917	628	547	492	429	280	-4
0	1503	1524	1557	1556	1546	1532	1399	936	638	550	497	436	280	-5
-50	1536	1551	1581	1585	1570	1556	1422	953	645	549	499	442	280	-6
-100	1565	1574	1599	1605	1588	1575	1441	967	649	543	498	446	280	-7
-150	1589	1591	1610	1618	1599	1588	1454	977	649	533	492	447	280	-8
-200	1607	1601	1612	1624	1602	1592	1460	982	643	515	478	443	280	-9
-250	1621	1586	1576	1587	1566	1561	1431	980	630	486	455	436	280	-10
-300	1621	1586	1576	1587	1566	1561	1431	980	630	486	455	436	280	-11
-350	1607	1549	1527	1535	1516	1516	1381	931	574	399	379	399	280	-12
-400	1571	1488	1455	1461	1443	1446	1301	877	529	339	327	367	280	-13
-450	1511	1399	1358	1364	1346	1347	1189	798	472	275	267	323	280	-14
-500	1421	1294	1243	1246	1231	1217	1038	700	403	208	210	265	280	-15
-550	1309	1167	1110	1115	1103	1068	838	579	323	145	154	201	280	-16
-600	1175	1025	969	969	957	899	599	444	242	92.2	106	137	280	-17
-650	1021	884	829	823	803	729	342	310	168	50.7	65.9	86.2	280	-18
-700	867	754	699	685	652	563	122	187	106	28.7	34.5	45.5	280	-19
-750	719	641	586	566	517	442	32.6	96.5	56.3	15.3	15.8	21.7	280	-20
-800	593	546	492	469	411	313	3.2	33.9	21.0	5.3	3.7	6.9	280	-21
-850	489	466	416	391	329	230	7.6	2.7	0.5	1.4	0.4	0.4	280	-22
-900	406	396	353	327	264	174	0.5						280	-23
-950	338	337	300	275	215	136							280	-24
-1000	283	289	255	232	178	112							280	-25
-1050	238	247	217	197	151	96.2							280	-26
-1100	202	209	189	172	133	86.4							280	-27
-1150	178	182	170	156	122	80.0							280	-28
-1200	164	166	154	137	110	68.1							280	-29
-1250	62.6	57.7	40.8	26.2	20.4	10.3							280	-30

TABLES OF IONOSPHERIC DATA

December 1959 - January 1960

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Table 1
Ft. Monmouth, New Jersey (40.4°N, 74.1°W)

December 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.1	<280					2.90
01		4.0	(280)					2.85
02		3.95	<275					2.90
03		3.7	<275					2.95
04		3.35	<260					2.88
05		3.3	<280					2.85
06		3.2	<290					2.90
07		4.8	250					3.05
08		8.0	220		119	----		3.35
09		9.95	220		116	2.82		3.35
10		11.0	215		114	3.00		3.20
11		11.9	215		114	3.20		3.20
12		12.0	215		114	3.30		3.15
13		11.9	220		113	3.20		3.10
14		12.0	220		115	3.00		3.10
15		11.9	220		(119)	2.70		3.12
16		11.3	220		----	----		3.15
17		10.25	210					3.10
18		9.0	220					3.10
19		7.8	225					3.10
20		6.5	230					3.00
21		5.4	<250					3.00
22		4.8	(255)					3.00
23		4.4	<260					3.00

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 2

Okinawa I. (26.3°N, 127.6°E)

December 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.3)	270					(2.65)
01		(6.1)	265					(2.70)
02		6.1	255					3.05
03		(5.9)	240					(3.00)
04		(4.75)	250					(2.88)
05		(3.85)	300					(2.62)
06		3.8	(330)					(2.70)
07		>5.7	270					(2.90)
08		10.65	240				2.50	3.25
09		13.0	235		111	(3.10)		(3.30)
10		(14.25)	230		109	(3.3)	>3.5	(3.25)
11		13.65	225		109	----	4.2	(3.05)
12	---	14.5	225		109	----	4.5	(2.95)
13	---	(15.5)	225		110	----	4.6	(2.90)
14	---	(17.2)	<230		(109)	(3.60)	4.0	(2.85)
15		(17.5)	230		(110)	----	3.8	(2.92)
16		>17.15	240		118	----	3.8	(3.00)
17		>16.0	230		---	----		(3.05)
18		>14.0	210					(3.10)
19		>12.3	210					(3.00)
20		>11.65	225					(3.08)
21		>10.4	220					(3.05)
22		>9.0	220					(3.10)
23		>7.0	240					(2.90)

Time: 135.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3
Thule, Greenland (76.6°N, 68.7°W)

November 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.7)	255					----
01		(3.8)	260					----
02		(3.2)	265					(2.50)
03		(4.15)	250					----
04		(3.7)	275					----
05		(3.95)	275					(2.60)
06		(3.05)	250					----
07		(4.0)	240					----
08		(5.2)	250					(2.75)
09		---	240					----
10		(6.3)	235		---	----		(3.00)
11		(6.6)	240		---	----		(3.20)
12		(5.0)	245		---	----	2.6	(2.95)
13		(5.9)	240		---	----		(2.80)
14		(6.55)	250				3.3	(2.95)
15		(7.0)	240				2.0	----
16		(6.4)	240					(2.90)
17		(6.0)	250					(2.90)
18		(5.3)	245				2.9	(2.92)
19		(5.2)	255				3.4	(2.78)
20		(5.3)	250				----	----
21		(4.3)	270					(2.80)
22		(4.2)	<275					(2.80)
23		(3.95)	<280					(2.80)

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 4

Point Barrow, Alaska (71.3°N, 156.8°W)

November 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.6)					5.4	(2.72)
01		(4.5)					5.0	(2.70)
02		(4.75)					4.6	(2.65)
03		(3.85)					3.5	(2.60)
04		(3.55)					4.4	(2.58)
05		(3.4)					3.4	(2.50)
06		(4.0)					3.9	(2.60)
07		(4.4)					3.9	(2.45)
08		(4.45)					4.0	(2.58)
09		(4.45)					3.9	(2.65)
10		5.05					3.5	2.85
11		6.2					2.9	2.90
12		6.45						2.08
13		7.15						2.85
14		7.0						2.80
15		8.0						2.85
16		7.5						2.85
17		6.0					2.5	2.80
18		(4.7)					3.0	(2.75)
19		(4.0)					3.0	(2.80)
20		(3.8)					3.6	(2.82)
21		(4.0)					3.6	(2.92)
22		(4.0)					3.5	(2.82)
23		(4.0)					5.4	(2.95)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 5
Anchorage, Alaska (61.2°N, 149.9°W)

November 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(2.8)					1.9	(2.60)
01		(2.5)					1.6	(2.60)
02		(2.5)						(2.60)
03		(3.0)						(2.60)
04		(2.9)						(2.62)
05		(2.7)						(2.60)
06		(3.5)						(2.60)
07		(3.6)						(2.75)
08		4.9						3.00
09		6.3			115	----		3.15
10		7.8			----	----		3.20
11		8.6			----	----		3.15
12		9.7			----	----		3.18
13		10.8			----	----		3.20
14		10.45			----	----		3.20
15		9.7			----	----		3.22
16		8.9						3.15
17		7.8						3.15
18		5.9						3.10
19		4.6						3.12
20		(3.6)						3.15
21		(2.8)						(3.05)
22		(2.45)						(3.00)
23		(2.9)						(2.80)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 6

Adak, Alaska (51.9°N, 176.6°W)

November 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		2.7	345					2.58
01		2.75	345					2.55
02		2.9	345					2.50
03		2.8	345					2.60
04		2.8	345					2.50
05		2.75	<330					2.50
06		2.9	300				1.2	2.65
07	---	4.7	<260	---	120	1.60	2.0	3.02
08	---	7.65	230	---	(120)	(2.40)		3.32
09	---	9.5	225	---	115	2.60	2.7	3.22
10	---	11.15	225	---	<119	2.00	3.0	3.20
11	---	12.3	230	---	115	2.92		3.20
12	---	12.75	225	---	115	3.00		3.20
13	---	11.95	230	---	<119	2.90		3.15
14		11.5	230		120	2.65		3.10
15		11.15	225		<125	2.25		3.25
16		>9.0	215		(145)	(1.00)		3.30
17		7.2	220		---	----	2.1	3.22
18		5.2	215		---	----	1.2	3.35
19		3.6	230					3.20
20		2.8	255					3.10
21		2.5	275					3.00
22		2.5	315					2.05
23		2.6	300					2.75

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 7
Ft. Monmouth, New Jersey (40.4°N, 74.1°W)

November 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.25 (275)						2.90
01		4.8 (270)						2.85
02		5.0 (270)						2.90
03		4.65 (265)						2.90
04		4.2 (260)						2.92
05		3.5 <260						2.98
06		3.4 <275						2.90
07		6.35 235			---	----		3.18
08		8.8 225			111	2.55		3.30
09	---	10.3 220			111	3.00		3.30
10	(234)	11.3 215			109	3.25		3.20
11	(250)	11.8 210			110	3.35		3.15
12	(237)	12.2 215			110	3.40		3.10
13	---	12.05 220			112	3.30		3.10
14	---	12.0 220			113	3.12		3.10
15	---	12.0 225			116	2.75		3.10
16		11.65 220			(119)	2.35		3.10
17		10.75 215						3.10
18		9.0 220						3.05
19		7.75 225						3.00
20		6.7 235						3.00
21		5.9 <245						2.95
22		5.6 (255)						2.90
23		5.4 <260						2.90

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8
Washington, O. C. (38.7°N, 77.1°W)

November 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.0	270					2.80
01		4.75	280					2.80
02		4.7	270					2.85
03		4.6	270					2.90
04		4.3	260					2.90
05		3.8 (260)						2.90
06		(3.2) <280					3.0	(2.90)
07		5.9	245		(132)	1.85		3.15
08	---	9.0	235		113	2.50		3.25
09	---	10.4	230		109	2.95	3.0	3.20
10	240	11.4	220		105	3.20		3.15
11	(240)	11.75	220		105	3.35		3.10
12	(250)	12.2	220		108	3.35		3.00
13	(260)	12.3	230		107	3.35		3.00
14	---	12.1	230		109	3.20		3.00
15	---	12.0	235		114	2.90	3.0	3.00
16		12.0	230		119	2.40	2.4	3.00
17		11.05	225		---	----		3.00
18		9.45	220					3.00
19		7.9	230					2.95
20		6.9	235					3.00
21		6.0	245					2.90
22		5.5	260					2.85
23		5.3	260					2.90

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9
Okinawa I. (26.3°N, 127.8°E)

November 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(8.7)	240					(3.05)
01		>6.65	245					(2.85)
02		>6.6	250					(2.90)
03		>6.1	245					2.90
04		(5.45)	230					(3.25)
05		(3.85)	(260)					(2.80)
06		(3.4)	(325)					2.70
07		>6.45	260		---	---		(3.15)
08		11.1	240		116	---		3.25
09		(12.5)	235		110	---		3.28
10	---	(13.9)	<235		(109)	---		(3.15)
11	---	(13.9)	230		109	---		(3.10)
12	---	>14.0	<230		---	---		(2.90)
13	---	>14.4	<230		---	---		(2.85)
14	---	>14.6	<235		---	---		(2.92)
15	---	>14.4	<240		---	---		(2.95)
16		>14.4	240		---	---		---
17		(13.5)	235					(3.02)
18		>12.6	230					---
19		>11.6	230					---
20		>11.4	235					---
21		>11.5	230					---
22		>11.2	230					---
23		>9.0	235					(2.98)

Time: 135.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 10
Maui, Hawaii (20.8°N, 156.5°W)

November 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.4	<230					3.10
01		5.4	235					3.10
02		>4.35	230				1.8	3.00
03		3.8	250				1.9	2.90
04		>3.2	<290					2.60
05		2.95	(320)					2.50
06		3.35	320					2.45
07		7.1	255		<126	2.15		3.10
08	---	11.0	240		111	2.90	3.2	3.15
09	(250)	13.05	<235		108	3.32	3.6	3.20
10	(250)	13.95	220		107	3.60	4.2	3.10
11	(260)	14.0	220		105	3.80	4.1	2.95
12	(305)	14.8	215		105	3.80	4.0	2.90
13	(300)	15.55	220	---	107	3.80	3.9	2.90
14	(295)	15.6	225		105	3.70	4.2	2.90
15	(290)	15.85	230		107	3.40	4.1	2.90
16	---	15.4	235		109	3.00	4.0	2.95
17		14.0	230		(119)	2.42	4.3	3.05
18		13.0	215				4.2	3.10
19		11.95	220				4.2	3.15
20		10.55	220				3.1	3.00
21		10.45	235				3.4	3.05
22		9.65	220				2.6	3.20
23		7.65	220				1.8	3.10

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11
Baquiao, P. I. (16.4°N, 120.6°E)

November 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(11.0)	245					(3.02)
01		10.2	245					3.05
02		9.6	245					3.10
03		7.1	230					3.12
04		5.45	250					2.78
05		5.05	270					2.70
06		6.5	300					2.80
07		10.4	270		(129)	(2.60)	2.9	2.95
08		>13.2	260		(119)	(3.20)	3.6	2.90
09		14.85	(250)		119	(3.55)	4.2	(2.80)
10	---	>14.4	(245)		119	(3.80)	4.4	(2.50)
11	---	(14.3)	<245		119	(3.90)	4.4	(2.35)
12	---	>13.2	(240)		(119)	(3.90)	4.4	(2.25)
13	---	>13.5	(240)		(119)	(3.80)	4.3	(2.35)
14	---	>13.3	(245)		119	(3.60)	4.0	2.45
15	---	(13.8)	255		<121	(3.25)	3.8	(2.40)
16		(13.8)	270		(121)	2.82	3.4	(2.50)
17		(13.75)	290		<142	(2.15)	3.2	(2.58)
18		>12.0	320				2.1	(2.50)
19		>11.0	330					---
20		>11.0	300					---
21		>12.0	270					(2.78)
22		>12.0	250					(2.95)
23		(11.8)	250					(2.95)

Time: 120.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 12
Huancayo, Peru (12.0°S, 75.3°W)

November 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(9.95)	330					(2.82)
01		(9.1)	300					(2.90)
02		(9.0)	255					(3.05)
03		7.3	230					3.15
04		6.7	230					3.20
05		5.6	230					3.20
06		8.8	255		129	2.25	3.6	3.15
07		11.5	240		119	3.00		3.10
08		13.1	230		113	3.50	7.2	2.90
09	---	14.1	220		111	(3.80)	8.6	2.65
10	---	14.4	215		---	(4.00)	9.3	2.50
11	---	14.3	210		---	(4.10)	9.2	2.30
12	---	13.9	210		---	(4.15)	9.4	2.25
13	---	12.95	210		---	(4.10)	9.6	2.20
14	---	12.2	210		---	(3.90)	8.2	2.20
15		12.3	215		---	(3.65)	8.1	2.22
16		11.9	230		---	(3.20)	7.7	2.25
17		11.6	260		115	(2.70)	6.4	2.22
18		11.5	285		<155	1.75	4.5	2.30
19		>10.5	350					2.25
20		9.3	405					2.15
21		8.0	400					2.30
22		(9.1)	405					(2.45)
23		---	355					---

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 13
Point Barrow, Alaska (71.3°N, 156.0°W)

October 1959

Time	h'F2	foF2	h'F	fof1	h'E	foE	foEs	(M3000)F2
00	---	---	---	---	---	---	6.6	---
01	(4.95)	---	---	---	---	---	4.8	(2.60)
02	(4.4)	---	---	---	---	---	4.6	(2.60)
03	(4.5)	---	---	---	---	---	4.7	(2.55)
04	(4.65)	---	---	---	---	---	4.0	(2.60)
05	(4.5)	---	---	---	---	---	3.6	(2.50)
06	(4.0)	---	---	---	---	---	3.7	(2.45)
07	(4.55)	---	---	---	---	---	3.6	(2.60)
08	(5.2)	---	---	---	---	---	3.8	(2.75)
09	6.0	---	---	---	---	---	3.7	2.90
10	6.0	---	---	---	---	---	---	2.92
11	6.7	---	---	---	---	---	---	2.95
12	7.1	---	---	---	---	---	---	2.85
13	7.4	---	---	---	---	---	---	2.82
14	8.3	---	---	---	---	---	---	2.85
15	8.55	---	---	---	---	---	---	2.85
16	8.7	---	---	---	---	---	---	2.90
17	7.7	---	---	---	---	---	2.0	2.90
18	6.5	---	---	---	---	---	2.5	2.85
19	(5.6)	---	---	---	---	---	3.5	(2.80)
20	(5.25)	---	---	---	---	---	3.6	(2.75)
21	(4.3)	---	---	---	---	---	4.0	(2.75)
22	(4.3)	---	---	---	---	---	5.1	(2.85)
23	(4.9)	---	---	---	---	---	4.7	(2.70)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14
Fairbanks, Alaska (64.9°N, 147.8°W)

October 1959

Time	h'F2	foF2	h'F	fof1	h'E	foE	foEs	(M3000)F2
00	---	(4.4)	---	---	---	---	4.0	(2.90)
01	---	(4.3)	---	---	---	---	4.1	---
02	---	(3.6)	---	---	---	---	4.0	(2.60)
03	---	(3.6)	---	---	---	---	4.2	(2.65)
04	---	(3.7)	---	---	---	---	2.6	(2.60)
05	---	---	---	---	---	---	3.3	---
06	---	(3.6)	---	---	---	---	3.0	---
07	---	4.95	---	---	---	---	---	3.00
08	---	(6.0)	---	---	---	---	---	(3.80)
09	---	6.2	---	---	---	---	---	3.00
10	---	7.0	---	---	---	---	---	3.05
11	---	7.65	---	---	---	---	---	3.00
12	---	8.0	---	---	---	---	---	3.00
13	---	8.75	---	---	---	---	---	3.00
14	---	9.0	---	---	---	---	---	3.00
15	---	9.4	---	---	---	---	---	3.00
16	---	8.6	---	---	---	---	---	3.05
17	---	(8.2)	---	---	---	---	---	(3.10)
18	---	(6.0)	---	---	---	---	---	(3.00)
19	---	(6.0)	---	---	---	---	---	(3.10)
20	---	(5.6)	---	---	---	---	2.9	(3.10)
21	---	(4.5)	---	---	---	---	2.6	(3.10)
22	---	(4.8)	---	---	---	---	3.6	(3.05)
23	---	(4.0)	---	---	---	---	3.8	(2.90)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 15
Reykjavik, Iceland (64.1°N, 21.8°W)

October 1959

Time	h'F2	foF2	h'F	fof1	h'E	foE	foEs	(M3000)F2
00	---	---	(340)	---	---	---	3.7	---
01	---	---	(375)	---	---	---	4.1	---
02	---	>4.3	(390)	---	---	---	3.7	---
03	---	(4.3)	350	---	---	---	3.2	---
04	---	(4.2)	300	---	---	---	---	---
05	---	(4.05)	300	---	---	---	---	(2.80)
06	---	(4.0)	(300)	---	---	---	---	(2.72)
07	---	4.75	<275	---	---	---	3.00	---
08	---	5.8	(255)	---	---	---	3.10	---
09	---	6.65	(250)	---	---	---	3.00	---
10	---	7.2	(250)	---	---	---	3.00	---
11	---	(405)	0.25	<250	---	(123)	(2.75)	2.98
12	---	<325	8.5	240	---	119	(2.80)	3.00
13	---	(390)	8.3	240	---	121	---	3.02
14	---	(425)	8.7	240	---	119	2.70	3.00
15	---	---	8.5	245	---	121	---	3.00
16	---	---	8.6	250	---	---	---	3.05
17	---	---	6.7	260	---	---	1.4	3.00
18	---	---	(5.0)	275	---	---	2.6	(2.90)
19	---	---	(5.0)	320	---	---	3.0	2.80
20	---	---	(4.5)	(330)	---	---	3.1	(2.60)
21	---	---	(5.6)	330	---	---	3.6	(2.62)
22	---	---	>4.95	(325)	---	---	4.1	(2.65)
23	---	---	(4.85)	(370)	---	---	4.1	(2.60)

Time: 15.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 16
Anchorage, Alaska (61.2°N, 149.9°W)

October 1959

Time	h'F2	foF2	h'F	fof1	h'E	foE	foEs	(M3000)F2
00	---	(3.3)	---	---	---	---	---	(2.70)
01	---	(3.2)	---	---	---	---	2.5	(2.55)
02	---	(3.0)	---	---	---	---	2.2	(2.55)
03	---	(3.0)	---	---	---	---	1.4	(2.50)
04	---	(2.8)	---	---	---	---	---	(2.50)
05	---	(2.9)	---	---	---	---	---	(2.50)
06	---	(3.5)	---	---	---	---	---	(2.60)
07	---	(4.7)	---	---	---	---	---	(3.00)
08	---	5.9	---	---	124	2.30	---	3.02
09	---	6.6	---	---	117	>2.55	---	3.05
10	---	7.45	---	---	115	>2.72	---	3.02
11	---	8.4	---	---	119	2.80	---	2.95
12	---	8.9	---	---	119	2.85	---	3.00
13	---	9.05	---	---	117	2.80	---	3.00
14	---	9.5	---	---	119	2.70	---	3.00
15	---	9.6	---	---	121	2.40	---	3.08
16	---	9.5	---	---	(139)	1.95	---	3.10
17	---	8.75	---	---	---	---	---	3.08
18	---	7.2	---	---	---	---	---	3.00
19	---	6.45	---	---	---	---	---	3.00
20	---	5.05	---	---	---	---	---	3.00
21	---	4.1	---	---	---	---	---	3.00
22	---	(3.7)	---	---	---	---	---	(2.90)
23	---	3.1	---	---	---	---	---	2.75

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 17
Adak, Alaska (51.9°N, 176.6°W)

October 1959

Time	h'F2	foF2	h'F	fof1	h'E	foE	foEs	(M3000)F2
00	---	3.4	320	---	---	---	2.55	---
01	---	3.3	325	---	---	---	1.2	2.58
02	---	3.4	340	---	---	---	---	2.55
03	---	3.4	320	---	---	---	---	2.55
04	---	3.35	325	---	---	---	1.5	2.50
05	---	3.3	320	---	---	---	1.5	2.55
06	---	4.2	280	---	130	1.62	---	2.75
07	---	6.3	235	---	(114)	2.20	2.2	3.15
08	---	8.3	230	---	112	2.60	---	3.20
09	---	(480)	9.7	235	---	110	2.95	3.1
10	---	(470)	11.0	225	---	110	3.10	3.3
11	---	---	11.1	225	---	106	3.18	3.4
12	---	---	11.5	225	---	110	3.20	3.4
13	---	---	11.0	230	---	110	3.10	3.3
14	---	---	10.7	230	---	110	2.92	3.0
15	---	---	10.0	230	---	112	2.70	3.10
16	---	---	9.8	230	---	(117)	2.32	3.15
17	---	---	8.6	225	---	<139	1.75	1.9
18	---	---	7.2	225	---	---	---	1.7
19	---	---	6.0	230	---	---	---	1.5
20	---	---	4.8	240	---	---	---	1.3
21	---	---	4.1	255	---	---	---	1.3
22	---	---	3.65	<280	---	---	---	2.80
23	---	---	3.35	310	---	---	---	2.65

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 18
Ft. Monmouth, New Jersey (40.4°N, 74.1°W)

October 1959

Time	h'F2	foF2	h'F	fof1	h'E	foE	foEs	(M3000)F2
00	---	5.8	<275	---	---	---	---	2.85
01	---	5.7	<280	---	---	---	---	2.80
02	---	5.4	<265	---	---	---	---	2.85
03	---	5.0	(260)	---	---	---	---	2.85
04	---	4.5	(265)	---	---	---	---	2.85
05	---	4.1	<295	---	---	---	---	2.80
06	---	4.8	<255	---	---	---	---	3.00
07	---	7.5	230	---	<119	(2.52)	---	3.28
08	---	9.4	220	---	112	2.90	---	3.30
09	---	10.4	215	---	109	3.20	---	3.20
10	---	(245)	10.9	205	---	107	3.45	3.10
11	---	(253)	11.3	200	---	109	3.50	3.05
12	---	---	11.7	210	---	109	3.50	3.00
13	---	(255)	11.8	215	---	111	3.50	3.00
14	---	---	11.65	220	---	110	3.40	3.00
15	---	---	>11.5	225	---	116	3.05	3.00
16	---	---	>11.3	230	---	117	2.60	3.05
17	---	---	11.0	225	---	---	---	3.10
18	---	---	9.7	220	---	---	---	3.05
19	---	---	8.2	225	---	---	---	2.95
20	---	---	7.2	235	---	---	---	2.95
21	---	---	6.6	(250)	---	---	---	2.90
22	---	---	6.2	<260	---	---	---	2.85
23	---	---	5.85	<270	---	---	---	2.82

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 19

Washington, D. C. (30.7°N, 77.1°W)							
October 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		5.7	280				2.80
01		5.5	280				2.75
02		5.1	280				2.75
03		4.95	270				2.80
04		4.5	270				2.80
05		(4.0)	270				(2.75)
06		4.4	265				2.90
07		7.25	240		119	2.20	3.20
08		9.4	230		109	2.80	3.20
09		(245)	10.4	220	109	3.10	3.20
10		(250)	11.0	215	107	3.30	3.10
11		(260)	11.3	210	105	3.45	3.00
12		(280)	11.8	220	105	3.50	2.95
13		(270)	12.0	220	105	3.45	2.90
14		(270)	11.9	230	105	3.35	2.90
15		---	11.7	230	109	3.10	2.90
16		---	11.6	240	111	2.70	2.95
17		---	11.0	235	130	2.10	3.05
18			9.7	220			3.00
19			0.3	230			3.00
20			7.2	240			2.88
21			6.6	250			2.90
22			6.2	260			2.80
23			5.8	270			2.80

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 20

White Sands, New Mexico (32.3°N, 106.5°W)							
October 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		4.8	(290)				2.70
01		4.8	(295)				2.70
02		4.8	<290				2.75
03		4.7	<290				2.75
04		4.5	<290				2.70
05		4.45	<295				2.72
06		5.3	270				2.90
07		8.55	240		121	2.30	>2.3
08		10.2	230		111	2.90	3.22
09		11.15	215		111	(3.22)	3.15
10		11.65	210		109	3.50	3.02
11		12.0	210		111	3.60	2.90
12		---	12.5	210	111	3.70	2.90
13		---	12.5	220	111	3.70	2.90
14		---	12.5	230	114	3.50	2.05
15		12.35	235		111	3.22	3.3
16		12.2	240		115	2.60	3.0
17		11.6	230		<125	2.20	3.05
18		10.2	215				3.10
19		7.6	210				3.05
20		6.35	245				2.95
21		5.3	250				2.95
22		5.0	(270)				2.80
23		4.7	<260				2.75

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 21

Okinawa I. (26.3°N, 127.0°E)							
October 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		11.4	240				(2.90)
01		10.4	240				(2.90)
02		8.5	235				2.90
03		8.0	235				2.92
04		6.3	225				3.10
05		4.7	235				2.80
06		4.6	(280)				2.80
07		0.5	240				3.20
08		11.2	230		109	3.00	3.20
09		12.3	230		(109)	3.40	>3.6
10		13.5	<225		(110)	(3.70)	4.0
11		14.2	210		(109)	---	4.0
12		14.55	210		111	---	>3.7
13		(320)	(15.4)	210	(114)	(3.90)	(2.80)
14		---	(16.7)	230	111	(3.80)	(2.00)
15		---	>17.0	230	(111)	(3.52)	>3.6
16		---	(16.5)	240	(115)	(3.20)	3.6
17			(15.5)	240	117	---	3.1
18			(14.5)	240			(3.00)
19			>14.4	240			(2.90)
20			>14.2	230			(2.80)
21			>14.2	235			(2.88)
22			>13.2	230			(2.90)
23			>12.6	240			(2.88)

Time: 135.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 22

Maui, Hawaii (20.8°N, 156.5°W)							
October 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		7.4	225				3.00
01		6.05	235				3.05
02		5.0	235				2.95
03		4.3	245				2.85
04		3.4	(260)				2.70
05		3.1	315				2.60
06		3.9	320				2.60
07		8.2	250		<123	2.30	2.4
08		10.7	235		110	3.00	3.3
09		---	12.5	220	107	3.40	3.7
10		(290)	13.2	215	107	3.65	4.0
11		(280)	14.2	215	107	3.80	4.1
12		(300)	14.4	210	107	3.90	4.2
13		(320)	15.0	210	---	107	3.90
14		(320)	16.1	215	---	(107)	3.80
15		(290)	15.7	235	---	107	3.50
16		(260)	15.1	235	(111)	3.10	4.0
17		---	14.0	235	<115	2.50	4.1
18		---	13.2	230	---	---	4.5
19			12.6	230			3.9
20			12.3	230			3.0
21			11.2	230			2.2
22			10.5	240			3.10
23			9.0	225			3.20

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 23

Pago, P. I. (16.4°N, 120.6°E)							
October 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		13.0	250				3.00
01		11.8	245				3.08
02		10.5	235				3.20
03		7.3	225				3.10
04		5.95	245				1.7
05		4.6	255				1.8
06		6.8	205		<142	(1.85)	2.90
07		10.5	265		125	(2.68)	2.9
08		12.5	250		119	(3.25)	3.9
09		13.9	240		117	(3.60)	4.2
10		14.5	230		116	(3.00)	4.6
11		14.0	230		(119)	(3.95)	4.4
12		13.5	(230)		(119)	(4.00)	4.2
13		13.7	230		(119)	3.68	2.25
14		14.05	230		119	3.70	2.40
15		>14.2	270		119	3.40	3.6
16		14.5	265		121	3.00	3.5
17		>14.1	260		129	2.20	3.1
18		(14.1)	320				2.4
19		>13.0	370				(2.35)
20		>14.25	310				(2.58)
21		14.7	270				(2.70)
22		14.2	260				2.95
23		13.5	250				3.00

Time: 120.0°P.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 24

Talara, Peru (4.6°S, 81.3°W)							
October 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		>11.7	220				4.2
01		10.45	230				3.2
02		0.55	230				3.2
03		6.0	230				2.6
04		5.85	240				2.1
05		5.15	255				2.3
06		6.0	275				2.0
07		9.6	250		123	2.65	3.10
08		12.2	235		119	3.30	2.90
09		13.5	225		114	3.70	2.78
10		14.0	215		111	3.95	2.50
11		>14.1	210		111	4.05	2.30
12		>13.6	210		111	4.10	2.25
13		13.3	205		111	4.08	2.25
14		13.1	205		109	4.00	2.25
15		12.8	210		109	3.65	4.0
16		12.55	220		111	3.30	4.1
17		12.3	250		115	2.05	3.2
18		>12.0	275		<155	2.10	3.6
19		(12.0)	320				2.0
20		(11.8)	335				2.0
21		>11.45	<290				1.7
22		>12.0	240				2.1
23		11.75	220				4.0

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 25

Huancayo, Peru (12.0°S, 75.3°W)							
October 1959							
Time	h'F2	fnF2	h'F	fof1	h'E	fnE	foEs (M3000)F2
00		8.65	225				3.00
01		7.9	235				3.02
02		7.5	235				3.05
03		7.3	240				3.00
04		6.5	240				3.12
05		5.4	235				3.20
06		8.0	255				3.10
07		11.25	240		131	2.05	3.10
08		12.9	225		117	(3.45)	7.8
09		13.5	220			(3.75)	8.6
10		>13.4	210			(4.00)	9.5
11	---	12.0	205	---	---	(4.05)	9.7
12	---	11.6	200	---	---	(4.00)	9.6
13	---	11.4	200	---	---	(4.00)	9.4
14		11.3	200			(3.85)	8.5
15		11.3	200			(3.60)	7.8
16		11.2	240			(3.30)	7.3
17		11.1	260		117	2.60	6.2
18		11.3	290			(1.60)	2.30
19		10.0	375				2.25
20		9.3	370				2.32
21		9.6	290				2.60
22		10.1	265				2.90
23		9.65	230				2.95

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 27

Point Barrow, Alaska (71.3°N, 156.8°W)							
September 1959							
Time	h'F2	fnF2	h'F	fof1	h'E	fnE	foEs (M3000)F2
00		(6.0)					7.8
01		(5.0)					5.6
02		(5.4)					5.0 (2.50)
03		---					4.5
04		(4.5)					4.1
05		---					3.7
06		(4.0)					4.5
07		(4.8)					3.6 (2.45)
08		(5.95)					(2.52)
09		(5.7)					(2.62)
10		5.8					2.65
11		5.35					2.55
12		5.75					2.55
13		5.55					2.45
14		6.05					2.55
15		6.4					2.65
16		6.6					2.70
17		6.0					2.80
18		6.5					2.8
19		(5.7)					4.8 (2.80)
20		(4.6)					4.6 (2.68)
21		(3.8)					6.2 (2.45)
22		(4.6)					5.2 (2.60)
23		(4.8)					6.5 (2.62)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 29

Fairbanks, Alaska (64.9°N, 147.8°W)							
September 1959							
Time	h'F2	fnF2	h'F	fof1	h'E	fnE	foEs (M3000)F2
00		---					4.8
01		---					4.4
02		---					4.6
03		---					4.9
04		---					4.2
05		(4.6)					4.3 (2.50)
06		(5.2)					(2.65)
07		(5.55)					(2.52)
08		(5.8)					(2.60)
09		6.15					2.70
10		6.4					2.75
11		6.1					2.60
12		5.65					2.58
13		5.85					2.60
14		6.0					2.60
15		6.45					2.70
16		(6.65)					(2.78)
17		(6.7)					(2.85)
18		(6.2)					(2.90)
19		(5.7)					(2.85)
20		(5.85)					3.1 (2.85)
21		---					3.6
22		(5.15)					4.0 (2.70)
23		---					4.6

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 26

Thule, Greenland (70.6°N, 69.7°W)							
September 1959							
Time	h'F2	fnF2	h'F	fof1	h'E	fnE	foEs (M3000)F2
00		(4.95)	290		---	---	2.4 (2.55)
01		---	270		---	---	3.4
02		(5.05)	280		137	---	(2.55)
03		(4.05)	280		(131)	(1.70)	---
04		(5.5)	275		130	1.02	2.9 (2.70)
05		(5.2)	265		118	1.90	3.4 (2.90)
06	---	(4.8)	250	---	117	2.15	3.5 (2.85)
07	---	(5.5)	250	---	111	2.32	4.4 (2.95)
08	6	5.4	250	---	110	2.45	4.2
09	(425)	(5.5)	245	---	111	2.50	3.0 (2.70)
10	(450)	(6.35)	245	4.0	111	2.70	4.8 (2.65)
11	(515)	(5.6)	240	(4.1)	111	2.70	3.7 (2.80)
12	445	(5.7)	240	4.3	111	2.70	3.4 (2.65)
13	(465)	(5.45)	240	4.1	111	2.70	(2.72)
14	(415)	(5.5)	240	4.2	113	2.60	3.6 (2.61)
15	(400)	(6.0)	240	4.1	116	2.45	3.9 (2.70)
16	(420)	(5.7)	250	---	<121	2.30	4.3 (2.60)
17	---	(5.9)	260	---	(121)	2.10	3.6 (2.70)
18	---	(5.8)	260	---	(129)	1.90	4.2 (2.70)
19		(5.6)	270	---	<155	---	3.6 (2.70)
20		(5.8)	290	---	---	---	3.5 (2.70)
21		---	270	---	---	---	3.2
22		(5.1)	270	---	---	---	2.9 (2.55)
23		(5.45)	280	---	---	---	(2.70)

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 28

Gudhavn, Greenland (69.3°N, 53.5°W)							
September 1959							
Time	h'F2	fnF2	h'F	fof1	h'E	fnE	foEs (M3000)F2
00		(3.7)			---	---	(2.50)
01		(3.45)			---	---	(2.60)
02		(3.7)			---	---	---
03		(3.2)			---	---	---
04		(3.35)			---	---	---
05		(4.0)			---	---	---
06		(3.9)			100	---	---
07		(4.6)			107	(2.12)	---
08		(4.8)			(3.6)	107 (2.35)	---
09		(5.15)			(3.8)	105	2.70
10		(6.5)			(4.0)	105	2.90
11		(6.8)			(4.2)	104	(2.95)
12		(5.8)			(4.1)	103	3.00
13		(5.7)			(4.2)	103	(3.00)
14		(5.6)			(4.4)	103	3.0
15		(5.7)			(4.1)	105	2.80
16		(5.5)			(4.3)	105	2.70
17		(5.6)			---	<111	(2.52)
18		(5.8)			---	(111)	(2.25)
19		(5.55)			---	<125	(1.75)
20		(5.75)					3.0
21		(5.3)					3.8
22		(5.0)					---
23		(4.2)					---

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 30

Reykjavik, Iceland (64.1°N, 21.8°W)							
September 1959							
Time	h'F2	fnF2	h'F	fof1	h'E	fnE	foEs (M3000)F2
00		---	(405)				4.3
01		>4.65	(420)				4.3
02		>1.5	<440				4.0
03		---	(410)				4.5
04		(4.5)	(380)				4.4
05		(4.3)	(330)		---	---	3.6 (2.62)
06		4.9	(300)		---	---	2.85
07	---	5.35	(270)	---	---	---	2.90
08	---	6.1	(260)	---	<121	(2.65)	2.90
09	(480)	6.2	(245)	---	117	(2.90)	2.85
10	(500)	6.6	(240)	1.7	117	3.00	2.78
11	520	6.7	<240	4.6	113	3.20	2.70
12	485	6.85	230	4.6	115	3.20	2.70
13	530	7.2	230	4.7	111	3.20	2.70
14	<485	7.2	235	---	115	3.15	2.70
15	(465)	7.2	240	4.4	113	3.08	2.65
16	(370)	6.6	250	---	115	2.90	2.78
17	---	6.2	230	---	121	2.70	2.85
18	---	5.9	300	---	121	(2.68)	4.1
19	---	(5.75)	<320	---	125	---	3.6
20		5.5	(350)				3.6 (2.60)
21		---	<390				5.4
22		---	(360)				4.7
23		---	<405				4.2

Time: 15.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 31

Narsarsuaq, Greenland (61.2°N, 45.4°W) September 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		(4.5)					5.0 (2.55)
01		(4.0)			---	---	3.7 (2.50)
02		(3.9)			---	---	3.6 (2.50)
03		(4.3)			---	---	3.6 (2.50)
04		(4.2)			---	---	3.4 (2.70)
05		(4.7)			(109)	---	3.8 (2.80)
06		4.9			---	109 (2.20)	3.6 2.90
07		5.6			<121	2.70	2.90
08		5.85			(111)	2.95	2.90
09		5.85			4.4	112 3.15	2.80
10		6.5			4.5	113 3.30	2.80
11		7.0			4.6	111 3.30	2.65
12		7.7			(4.9)	107 3.30	2.62
13		7.0			4.8	107 3.30	2.65
14		6.95			4.6	109 3.20	2.60
15		6.9			4.4	110 3.05	2.70
16		(6.6)			---	107 2.90	3.2 (2.75)
17		(6.5)			---	113 2.70	2.72
18		(5.95)			---	116 (2.75)	3.6 (2.70)
19		(5.9)			---	115	4.6 (2.70)
20		(5.35)			---	---	5.8 (2.60)
21		(5.1)			---	---	5.2 (2.50)
22		(5.1)			---	---	5.0 (2.55)
23		(5.1)			---	---	5.2 (2.45)

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 33

White Sands, New Mexico (32.3°N, 106.5°W) September 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		5.6	325				2.40
01		5.5	<345				2.45
02		5.4	330				2.45
03		5.1	325				2.48
04		5.0	345				2.40
05		1.9	330				2.42
06		6.0	290		<149	---	1.9 2.75
07		8.25	260		124	2.70	2.9
08		9.2	250		121	3.20	3.3 2.90
09	(360)	9.3	240		119 (3.60)		2.80
10	(360)	9.8	225		<119	3.75	>3.8 2.65
11	(395)	10.7	230		117 (3.85)		2.60
12	(380)	11.3	235		117	3.98	3.6 2.60
13	400	11.4	235		119	3.90	2.60
14	(390)	10.9	240		119	3.80	2.60
15	---	10.9	250		117	3.55	2.65
16	---	10.3	255		119	3.20	2.70
17		9.9	265		125	2.70	2.8 2.75
18		9.6	260		<135	---	2.0 2.80
19		8.1	250				2.1 2.75
20		6.7	260				2.65
21		6.2	295				2.60
22		5.8	310				2.55
23		5.7	325				2.50

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 35

Maui, Hawaii (20.8°N, 156.5°W) September 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		8.85	260				2.95
01		8.0	255				2.85
02		7.2	250				2.90
03		6.35	250				2.90
04		4.95	<265				2.80
05		4.55	<300				2.60
06		4.8	315		129	---	2.68
07		7.85	245		115	2.50	2.5 3.08
08		10.05	230		111	3.10	3.7 3.00
09		11.5	225		109	3.55	4.2 2.90
10		12.1	220		108	3.80	4.4 2.60
11	(375)	12.8	215		109	4.00	4.5 2.70
12	(350)	13.6	210	(6.4)	109	4.10	4.5 2.75
13	355	14.3	<220	(6.6)	109	4.08	4.3 2.75
14	345	14.6	220	(6.4)	109	4.00	4.2 2.75
15	340	14.5	230		109	3.85	4.2 2.60
16	330	14.55	235		109	3.50	4.0 2.65
17	285	14.75	245		112	2.90	3.6 2.90
18		13.8	250		118	2.15	3.8 3.00
19		12.8	240				3.2 3.02
20		11.8	245				3.2 2.90
21		11.45	250				2.4 2.85
22		10.5	260				2.2 2.85
23		9.55	260				2.90

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 32

Adak, Alaska (51.9°N, 176.6°W) September 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		4.3	310				2.50
01		4.3	320				2.50
02		4.2	340				2.45
03		4.1	340				2.50
04		4.0	350				1.2 2.45
05		4.1	330		(111)	---	1.6 2.50
06		5.1	265		---	111 2.10	2.2 2.75
07	(590)	6.25	250	4.0	109	2.65	2.8 2.90
08	(540)	6.75	235	4.6	105	3.00	3.2 2.85
09	(655)	7.3	225	4.7	104	3.20	3.6 2.90
10	430	7.8	220	4.8	102	3.40	3.6 2.80
11	500	8.35	215	4.9	101	3.48	3.7 2.80
12	(640)	8.8	220	5.0	101	3.50	2.82
13	390	9.0	220	5.1	101	3.50	2.85
14	---	8.8	225	---	101	3.32	2.90
15	---	8.4	235	---	102	3.10	2.90
16	---	8.25	240	---	102	2.80	2.90
17	---	8.05	245	---	(111)	2.30	2.4 3.00
18	---	7.7	245	---	<125	(1.75)	2.0 3.00
19		6.75	240	---	---	---	1.7 3.00
20		6.2	245	---	---	---	1.5 2.90
21		5.65	260	---	---	---	1.2 2.90
22		4.7	<270	---	---	---	2.70
23		>4.4	300	---	---	---	2.55

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 34

Grand Bahama I. (26.6°N, 78.2°W) September 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		6.85	290				2.65
01		6.9	275				2.78
02		6.55	255				2.80
03		5.9	260				2.72
04		5.65	<200				2.65
05		5.35	290				2.68
06		6.25	250		<131	(1.90)	1.9 2.70
07		>9.0	240		115	2.60	2.9 3.10
08		10.0	230	---	109	3.15	3.3 3.05
09		10.6	215	---	108	3.50	3.6 2.85
10	(340)	11.3	210	---	110	3.85	2.80
11	(320)	11.3	210	(6.0)	107	4.00	2.75
12	(330)	11.85	220	---	107	4.00	2.75
13	(340)	12.1	220	6.0	107	4.00	2.75
14	(350)	11.85	220	---	109	3.90	2.70
15	(330)	(11.5)	230	---	107	3.70	2.70
16	---	(11.5)	230	---	110	3.30	3.4 2.75
17		(10.3)	240		111	2.78	3.0 2.85
18		>9.0	240		121	2.08	2.1 (2.90)
19		8.95	230				2.82
20		7.8	<240				2.70
21		7.2	260				2.70
22		>7.0	280				2.75
23		7.0	270				2.70

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 36

Talara, Peru (4.6°S, 81.3°W) September 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		11.6	230				3.05
01		10.55	230				3.10
02		8.6	235				3.05
03		7.7	240				3.15
04		6.5	240				3.20
05		5.1	250				3.00
06		5.1	260				2.70
07		8.2	250		125	2.50	3.00
08		10.6	235		119	3.30	2.80
09		12.05	220		115	3.75	2.55
10		12.7	210		111	4.00	2.35
11		12.95	210		109	4.15	2.25
12		12.95	<205	---	109	4.20	2.20
13		12.6	205	---	109	4.15	2.15
14		12.7	200	---	109	4.00	2.15
15		12.4	205	---	109	3.85	2.18
16		12.1	220		110	3.45	3.8 2.15
17		11.95	245		115	3.00	2.15
18		11.7	275		<149	2.20	2.20
19		>11.0	350				(2.30)
20		(11.5)	375				(2.30)
21		>11.65	300				(2.58)
22		>12.0	230				2.0 2.80
23		11.9	225				2.98

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 37

Boulder, Colorado (40,0°N, 105,3°W)							
August 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		4.95	300				3.0 2.55
01		4.9	315				2.2 2.50
02		4.75	310				2.2 2.55
03		4.5	310				2.4 2.55
04		4.2	<320				2.8 2.52
05	---	4.3	305	---	(119)	(1.65)	2.0 2.60
06	395	5.35	250	4.0	(107)	2.30	2.8 2.72
07	440	6.0	235	4.5	103	2.90	3.7 2.70
08	410	6.6	220	5.0	101	3.32	3.9 2.68
09	495	6.5	210	5.2	101	3.60	4.2 2.50
10	440	7.2	200	5.3	101	3.80	4.0 2.60
11	450	7.2	<210	5.6	101	3.90	4.2 2.55
12	450	7.1	215	5.5	101	4.00	2.50
13	440	7.4	220	5.5	101	4.00	4.3 2.50
14	440	7.35	215	5.5	101	3.90	2.52
15	420	7.2	220	5.4	101	3.70	3.8 2.60
16	420	7.3	<230	5.1	101	3.48	3.8 2.65
17	350	7.1	230	4.8	101	3.10	3.5 2.70
18	---	7.2	250	---	(109)	2.40	3.1 2.60
19	7.3	250					3.6 2.85
20	7.0	250					4.0 2.80
21	6.4	250					3.5 2.72
22	5.7	270					3.4 2.70
23	5.05	290					3.2 2.60

Time: 105,0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 39

White Sands, New Mexico (32,3°N, 106,5°W)							
July 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		6.2	320				3.1 2.50
01		6.0	300				3.1 2.55
02		5.9	300				2.5 2.52
03		5.8	310				2.9 2.50
04		5.5	<305				2.8 2.55
05		5.3	300				3.0 2.62
06	(420)	6.05	250	3.8	113	2.50	2.6 2.72
07	(445)	6.0	235	4.4	105	3.02	3.8 2.70
08	440	7.35	<240	5.0	104	(3.50)	4.2 2.55
09	440	7.9	(220)	5.3	103	3.70	4.8 2.55
10	425	8.2	(210)	5.5	105	(3.90)	5.2 2.50
11	430	8.3	(220)	5.5	105	---	4.5 2.50
12	440	8.3	(210)	5.6	105	---	4.5 2.50
13	440	8.5	215	5.6	107	---	4.5 2.50
14	420	8.4	225	5.5	<109	4.00	4.2 2.50
15	420	8.0	225	5.4	<108	3.80	4.0 2.55
16	<405	8.1	230	5.2	105	3.60	3.8 2.55
17	390	8.0	(245)	4.9	105	3.30	4.2 2.60
18	(370)	7.9	(260)	---	112	---	4.0 2.70
19	7.9	(270)			110	---	4.6 2.75
20	7.5	(270)					3.9 2.72
21	7.0	(270)					3.5 2.60
22	6.7	<300					4.4 2.55
23	6.25	300					3.0 2.50

Time: 105,0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 41

Juliaca, Peru (15,5°S, 70,2°W)							
May 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		8.0	215				4.0 3.08
01		8.0	225				3.7 3.10
02		7.0	220				3.9 3.20
03		5.05	225				3.8 3.15
04		5.4	230				3.8 3.20
05		4.6	230				4.0 3.20
06		6.6	270		(139)	1.00	4.4 3.00
07		10.5	240		113	2.72	4.4 3.05
08		12.55	230		109	3.30	7.4 2.88
09		13.3	215	---	(3.70)	8.0	2.68
10		13.1	210	---	(3.90)	9.0	2.45
11		12.55	210	---	---	9.2	2.25
12		12.0	200	---	---	9.2	2.25
13		11.4	210	---	(3.95)	9.0	2.20
14		11.5	210	---	(3.70)	9.0	2.25
15		11.5	225	---	(3.45)	0.2	2.30
16		11.5	245	---	(2.95)	7.8	2.32
17		11.25	270		130	(2.05)	4.8 2.30
18		10.6	330				2.25
19		9.6	325				2.25
20		9.6	280			3.1	2.45
21		9.3	230			3.6	2.75
22		0.9	225			3.9	2.92
23		9.1	220			4.0	3.00

Time: 75,0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 38

Talara, Peru (4,6°S, 81,3°W)							
August 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		10.0	215				2.85
01		9.4	235				3.02
02		9.3	240				3.10
03		8.15	240				3.15
04		6.75	240				3.20
05		5.85	245				3.10
06		5.1	260				2.85
07		7.3	265		131	2.25	2.4 2.85
08		9.2	240		119	3.10	3.2 2.79
09		10.3	230		115	3.60	2.45
10	---	10.8	215	---	111	3.95	2.30
11	---	11.3	215	---	111	4.10	4.1 2.20
12	---	11.7	210	(7.0)	111	4.20	2.15
13	---	12.0	210	(6.5)	111	4.20	2.15
14	---	12.0	210	(6.1)	111	4.10	2.10
15	---	12.0	215	(6.2)	110	3.90	2.15
16	---	11.75	<225	---	111	3.55	2.10
17		11.6	<240		115	3.05	3.1 2.15
18		11.4	270		(139)	2.30	2.3 2.10
19		(10.9)	345				1.9 2.15
20		>11.0	365				2.20
21		(11.4)	315				1.7 2.45
22		>11.65	260				2.65
23		(11.6)	230				(2.90)

Time: 75,0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 40

Singapore, British Malaya (1,3°N, 103,0°E)							
June 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		12.2	240				3.6 2.95
01		10.8	235				3.5 3.20
02		8.6	240				3.4 3.10
03		7.2	240				3.1 3.05
04		6.0	240				2.4 3.05
05		5.1	240				2.2 3.00
06	---	7.2	290		110	---	2.7 2.90
07	---	10.9	255		115	2.70	3.0 2.95
08	---	13.2	245		110	3.35	2.95
09	---	14.5	235		105	3.75	4.1 2.80
10	---	14.6	225		105	4.00	4.3 2.50
11	300	14.6	220	(5.6)	105	4.20	2.30
12	290	14.9	220	---	105	4.20	2.05
13	---	13.4	220	---	105	4.20	4.2 2.00
14	370	12.6	210	---	105	4.00	4.2 2.05
15	---	12.6	230		105	3.75	3.9 2.10
16	---	12.4	245		110	3.40	3.4 2.15
17	---	12.6	250		115	2.75	3.2 2.25
18	---	14.0	270		115	---	2.8 2.40
19		14.2	300				3.2 2.50
20		13.1	300				2.8 2.50
21		13.4	260				3.1 2.70
22		14.0	235				4.2 2.80
23		13.2	240				4.8 2.80

Time: 105,0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 42

Sodankylä, Finland (67,4°N, 26,6°E)							
April 1959							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		(5.8)	355				3.7 (2.35)
01		---	365				4.2
02		---	375		---	---	4.4
03		(5.6)	365		---	---	3.2 (2.40)
04		5.2	360		---	E	3.2 2.50
05		5.0	305		---	E	3.6 2.60
06		6.4	270		120	2.40	3.8 2.65
07		6.9	260		115	2.70	4.0 2.70
08		7.2	250	---	115	2.05	4.2 2.65
09		8.0	240	---	115	3.10	4.2 2.65
10		8.0	240	---	115	3.20	4.4 2.60
11		8.9	240	---	115	3.30	2.55
12		9.0	240	---	115	3.40	4.0 2.60
13		0.7	235	---	115	3.45	4.0 2.65
14		8.2	230	---	115	3.30	4.3 2.65
15		0.8	240		115	3.30	4.2 2.65
16		9.3	240		115	3.10	4.2 2.70
17		0.9	250		115	2.80	3.9 2.75
18		8.6	260		115	2.55	4.2 2.80
19		7.9	260		125	2.20	4.0 2.80
20		7.2	270		150	1.85	3.4 2.75
21		7.1	290		---	E	3.4 2.65
22		6.6	325		---	E	3.2 2.55
23		(6.8)	340				4.1 (2.45)

Time: 30,0°E.

Sweep: 1.4 Mc to 22.0 Mc in 8 minutes, automatic operation.

Table 43 Lulea, Sweden (65.6°N, 22.1°E) April 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.6)	335				2.6	---
01		(5.5)	360				2.4	(2.3)
02		(5.4)	350					(2.4)
03		(5.3)	325		---	1.5		(2.5)
04	---	5.4	290		130	1.8		2.6
05	---	5.9	270	---	120	2.2		2.5
06	(530)	6.2	260	4.3	120	2.6		2.65
07	(535)	6.7	250	4.6	115	2.9		2.65
08	(405)	7.5	240	5.0	110	3.2		2.7
09	(530)	7.8	240	5.0	110	3.3		2.7
10	(510)	8.6	230	5.0	110	3.4		2.7
11	(500)	8.6	230	5.4	110	3.5		2.6
12	470	8.6	230	5.3	110	3.5		2.6
13	(465)	8.8	235	5.3	110	3.4		2.7
14	(425)	8.6	240	5.0	110	3.3		2.7
15	---	8.8	240	---	115	3.2		2.7
16	---	8.9	250	---	115	2.9		2.8
17	---	7.8	260		120	2.6		2.9
18	---	8.1	260		125	2.2		2.9
19	---	7.0	270		<150	1.8		2.75
20		6.9	270	---	---	1.7		2.7
21		(6.4)	290	---	---	---		(2.6)
22		(5.8)	300	---	---	---	2.4	(2.4)
23		(6.2)	310	---	---	---	2.8	---

Time: 15.0°E.

Sweep: 0.65 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 45 Wakkanai, Japan (45.4°N, 141.7°E) April 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.2	310					2.60
01		8.0	295					2.60
02		7.8	290					2.60
03		7.4	270					2.55
04		7.3	295			---		2.50
05	---	8.0	270	---		1.90		2.70
06	---	9.3	240	---		2.55		2.90
07	---	10.8	240	---		3.10		2.85
08	---	11.5	235	---		3.40		2.80
09	---	12.3	230	---		3.60		2.70
10	---	12.2	230	---		3.70		2.80
11	---	12.5	225	---		3.80		2.70
12	---	12.5	230	---		3.80		2.75
13	---	12.3	235	---		3.80		2.75
14	---	12.0	240	---		3.65		2.75
15		11.7	240			3.50		2.75
16		11.1	245			3.10		2.75
17		10.8	250			2.60		2.80
18		10.3	250			2.00	2.3	2.80
19		9.8	260					2.80
20		9.0	260					2.75
21		8.6	265					2.75
22		8.3	290					2.70
23		8.3	300					2.65

Time: 135.0°E.

Sweep: 1.0 Mc to 20.7 Mc in 1 minute.

Table 47 Akita, Japan (39.7°N, 140.1°E) April 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.0	300					2.60
01		8.9	295					2.70
02		8.6	290					2.70
03		7.9	260					2.70
04		7.5	295					2.55
05		8.1	290			---		2.65
06		10.0	245			2.40		2.95
07		11.5	245			3.05	3.3	2.95
08		12.4	245			3.50	4.0	2.85
09	(250)	13.0	240			3.70	4.1	2.80
10	(245)	13.2	230			3.85	4.2	2.75
11	(245)	13.4	220			3.95	4.1	2.70
12	(250)	13.6	225			4.00	4.2	2.70
13	(250)	13.5	240			3.95		2.65
14	---	13.4	245			3.90		2.65
15		13.0	245			3.60		2.70
16		12.4	245			3.20	3.6	2.70
17		11.7	250			2.60	3.1	2.80
18		11.5	250			---	3.0	2.80
19		10.6	250				3.3	2.80
20		9.2	260				2.4	2.65
21		9.1	265					2.60
22		9.2	295					2.60
23		9.1	300					2.60

Time: 135.0°E.

Sweep: 1.6 Mc to 20.0 Mc in 20 seconds.

Table 44 Churchill, Canada (58.8°N, 94.2°W) April 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.4	310		---	---		4.6
01		5.7	300		---	---		5.0
02		5.0	320		---	1.6		4.0
03		4.9	320		---	1.3		4.4
04		4.6	340		160	1.8		4.5
05		4.7	330		120	2.2		4.2
06		4.9	300	3.8	120	2.9		4.2
07	(540)	5.3	260	4.1	110	3.0		4.8
08	580	6.1	260	4.6	110	3.2		4.6
09	480	6.3	260	5.0	110	3.4		4.8
10	490	7.0	240	5.0	110	3.5		4.8
11	560	7.0	230	5.1	105	3.5		4.5
12	460	7.7	230	5.2	105	3.5		2.5
13	450	8.3	230	5.2	110	3.5		2.5
14	450	8.2	230	5.2	105	3.4		2.5
15	440	8.0	230	4.8	110	3.3	4.2	2.6
16	410	7.6	240	4.6	110	3.1	4.2	2.5
17	410	7.3	250	4.4	110	3.0	4.2	(2.6)
18	(420)	7.0	280	4.1	120	2.7	4.1	(2.6)
19	---	6.3	300	---	120	2.6	4.0	(2.8)
20		6.0	310		120	2.1	3.8	---
21		5.5	330		125	2.2	5.2	---
22		5.3	340		140	2.2	6.5	
23		5.5	300		---	1.6	5.6	

Time: 90.0°W.

Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 46 Monte Capellino, Italy (44.6°N, 9.0°E) April 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.5	315					2.24
01		8.5	320					2.30
02		8.2	310					2.26
03		7.6	300					2.32
04		7.2	300					2.30
05		6.8	300					2.30
06		7.6	275			1.7		2.45
07		8.3	250			2.5		2.58
08		9.3	240			3.2		2.58
09		10.2	230			3.5		2.58
10		11.2	225			3.7	3.8	2.50
11		12.1	220			3.9	4.0	2.51
12		12.5	225			4.0		2.47
13		12.9	225			4.0		2.42
14		12.9	230			3.9		2.43
15		12.1	235			3.7		2.44
16		12.0	240			3.5	3.6	2.46
17		12.2	240			3.1	3.4	2.46
18		12.0	260			2.5	2.8	2.50
19		11.8	260			1.7	2.0	2.55
20		10.6	250				1.5	2.47
21		9.7	275					2.37
22		9.0	285					2.31
23		8.8	300					2.27

Time: 15.0°E.

Sweep: 1.0 Mc to 20.0 Mc in 5 minutes, automatic operation.

Table 48 Tokyo, Japan (35.7°N, 139.5°E) April 1959								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(9.3)	305					(2.60)
01		9.6	300					2.60
02		8.9	280					2.65
03		8.1	265					2.65
04		7.6	280					2.50
05		8.0	300					2.55
06		10.0	250			2.55		2.85
07		11.4	240			3.10	3.3	2.85
08		12.5	240			3.50	3.8	2.80
09	---	12.9	240			3.70	4.4	2.75
10	---	13.5	240			(3.85)	4.0	2.65
11	320	13.9	245			(3.95)		2.60
12	320	14.1	250			(4.00)	4.0	2.60
13	315	14.1	250			(4.00)	4.2	2.60
14	310	13.9	250			(3.90)		2.60
15	(310)	13.5	245			(3.70)		2.60
16	---	12.9	250			(3.35)	3.7	2.65
17		12.6	255			2.80	3.2	2.70
18		12.0	260				3.1	2.75
19		11.0	255					2.70
20		9.7	260					2.55
21		(9.6)	300					(2.50)
22		9.5	305					2.50
23		9.6	300					2.55

Time: 135.0°E.

Sweep: 1.0 Mc to 20.0 Mc in 20 seconds.

Table 49

Yamagawa, Japan (31.2°N, 130.6°E)								April 1959
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		11.0	270					2.75
01		10.8	260					2.80
02		10.5	250					2.90
03		9.1	240					2.95
04		8.1	230					2.70
05		7.6	250					2.70
06		8.6	250			1.95		2.85
07		10.5	230			2.70	2.8	3.05
08		11.8	225			3.25	3.7	3.00
09		12.5	220			3.60	4.2	2.90
10		13.2	205			3.90	4.3	2.80
11		13.9	200			4.00	4.3	2.80
12		14.5	210			4.00	4.3	2.75
13		14.6	225	---		4.10	4.4	2.70
14	350	14.7	220	7.2		4.00	4.5	2.75
15	345	14.5	225	7.1		3.80	4.2	2.75
16	320	13.9	230	---		3.50	4.0	2.70
17	---	13.6	240			3.10	3.4	2.80
18		13.4	250			2.35	3.0	2.85
19		12.7	250				3.2	2.90
20		11.5	250				3.2	2.70
21		11.3	275				2.2	2.60
22		11.5	290				2.6	2.65
23		11.3	205				2.5	2.70

Time: 135.0°E.

Sweep: 1.0 Mc to 19.4 Mc in 1 minute.

Table 51

Bunia, Belgian Congo (1.5°N, 30.2°E)								April 1959
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	(11.0)					1.8	(2.69)
01	240	(9.9)					2.0	(2.79)
02	230	>9.9					2.1	2.89
03	220	(8.6)					2.7	(3.12)
04	250	6.7			---	---	3.0	2.84
05	250	11.3	250	---	120	2.7	4.0	2.86
06	(260)	12.9	245	---	115	3.4	4.2	2.72
07	---	13.6	240	---	110	3.9	4.4	2.52
08	---	14.1	250	---	110	4.0		2.29
09	---	14.8	250	---	110	4.0		2.17
10	---	>15.1	250	---	110	4.1		2.13
11	---	14.0	250	---	110	4.0		2.04
12	(465)	>14.4	240	---	110	4.0		(2.01)
13	(480)	14.2	240	---	110	3.9		(1.98)
14	(465)	14.2	250	---	115	3.2		2.06
15	---	(14.2)	260	---	120	2.6	3.6	(2.68)
16	(300)	>13.3	300	---	---	---	3.0	<2.00
17	395	---					2.0	---
18	360	---						---
19	290	---						---
20	265	---				1.6		---
21	240	---				2.0		---
22	235	---				2.1		---
23	230	---				2.0		---

Time: 0.0.°.

Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 53

Leopoldville, Belgian Congo (4.4°S, 15.2°E)								April 1959
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	14.8						2.70
01	220	12.2						2.74
02	230	9.0						2.80
03	230	6.0						2.81
04	235	4.6						2.91
05	260	6.2	---	---	---	---	2.0	2.76
06	(250)	10.7	245	---	125	2.7	3.5	2.75
07	(250)	12.0	240	---	120	3.4	3.9	2.62
08	---	13.2	230	---	115	3.8		2.56
09	---	13.6	250	---	110	4.0		2.41
10	---	14.2	245	---	110	---		2.29
11	395	15.1	250	---	---	---		2.27
12	400	15.2	250	---	110	---		2.24
13	400	15.6	245	---	115	4.0		2.22
14	400	15.9	245	---	115	3.6		2.24
15	(385)	15.5	250	---	120	3.2	3.8	2.25
16	---	15.5	260	---	120	2.6	3.6	2.27
17	290	>15.1	285	---	---	---	2.6	2.33
18	335	---					2.4	---
19	300	---						---
20	250	---						---
21	230	---						---
22	230	>17.0						<2.60
23	225	16.4						2.72

Time: 0.0°.

Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 50

Badan, Nigeria (7.4°N, 1.0°E)								April 1959
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		8.5	295					(2.55)
01		8.4	275					(2.75)
02		8.7	250					(2.90)
03		8.3	245					(3.05)
04		7.3	240					3.15
05		6.9	240					3.30
06		8.5	250			2.10		3.15
07		12.1	245			3.05		3.10
08		14.2	235			3.55	6.8	2.85
09	(14.6)	220				3.95	7.0	(2.50)
10	(14.7)	215				(4.15)	7.0	(2.30)
11	13.9	205				(4.30)	7.0	2.30
12	13.2	200				(4.35)	7.0	2.15
13	13.0	200				(4.20)	7.0	2.10
14	12.7	205				(4.10)	7.0	2.10
15	12.5	215				(3.75)	7.0	2.10
16	(12.6)	240				3.50	7.0	(2.10)
17	(12.0)	260				2.65	5.7	(2.10)
18	11.3	310				1.60		(2.10)
19	8.8	460						(1.90)
20	7.0	470						---
21	7.7	425						---
22	6.2	390						---
23	6.4	315						(2.40)

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 52

Singapore, British Malaya (1.3°N, 103.8°E)								April 1959
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	14.3	235			115	---	<1.2	2.80
01	11.6	230			---	---	<1.2	2.90
02	10.1	235			---	---	<1.1	2.90
03	9.4	240			---	---	<1.2	3.00
04	8.9	225			---	---	<1.4	3.10
05	6.6	220			---	---	---	3.20
06	6.8	260			130	(1.50)	2.3	2.85
07	10.9	250			125	2.75	3.0	3.05
08	13.4	245			110	3.45	3.5	2.80
09	14.2	235			110	3.80	3.8	2.55
10	14.6	220			110	4.10		2.25
11	14.7	215			110	4.25		2.10
12	13.6	210			110	4.30		2.10
13	13.6	215			110	4.25		2.10
14	13.6	220			110	4.10		2.10
15	13.9	225			110	3.80		2.15
16	14.2	245			110	3.40		2.20
17	14.2	260			115	2.80		2.25
18	14.4	295			---	---		2.25
19	14.1	370			---	---	<1.3	2.10
20	14.3	365			---	---	<1.5	(2.20)
21	(14.6)	290			---	---	<1.4	(2.30)
22	14.3	240			---	---	1.8	(2.60)
23	14.4	230			---	---	<1.3	2.70

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 54

Elisabethville, Belgian Congo (11.6°S, 27.5°E)								April 1959
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	7.6						2.86
01	240	5.9						2.70
02	235	5.1						2.85
03	240	4.0						2.98
04	265	4.6	---	---	---	---	1.7	2.67
05	250	4.1	250	---	125	2.4	3.0	2.96
06	250	11.2	240	---	110	3.1		2.87
07	265	12.4	235	---	110	3.6		2.70
08	(205)	13.0	240	---	110	3.9		2.61
09	---	13.0	250	---	110	4.0		2.50
10	350	13.7	250	---	110	4.0		2.44
11	350	14.0	250	---	110	4.0		2.37
12	370	14.0	250	---	6.6	110	3.9	2.32
13	355	14.0	250	---	110	3.6	4.3	2.34
14	340	13.9	250	---	110	3.4	4.2	2.34
15	310	13.4	260	---	120	2.8	4.0	2.44
16	270	13.4	---	---	---	---	3.0	2.54
17	260	>13.0					2.5	2.58
18	260	13.0					2.4	2.60
19	245	>13.0					2.2	<2.60
20	240	(12.7)						<2.71
21	235	12.3						<2.72
22	235	10.5						2.81
23	240	9.5						2.75

Time: 0.0°.

Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 55									
Tromsø, Norway (69.7°N, 19.0°E)									
March 1959									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00		(5.3)	355				4.0	----	
01		(6.8)	350				3.2	----	
02		(6.2)	345				3.3	----	
03		(4.8)	330				3.2	----	
04		(5.2)	330				3.2	----	
05		6.0	295			1.40	2.4	(2.50)	
06		6.6	265		130	1.80	1.8	2.70	
07	(255)	7.7	255		110	2.25		2.70	
08	255	0.7	(260)	----	120	2.55		2.70	
09		9.3	250		115	2.80		2.70	
10	(250)	9.7	250		110	3.00		2.70	
11	(405)	10.1	250		110	3.00		2.70	
12	(265)	10.5	245		115	3.00		2.70	
13		10.7	245		115	3.00		2.70	
14	(245)	10.4	250		120	2.90		2.70	
15	245	9.7	255		125	2.70		2.70	
16	250	9.7	255		120	2.45		2.00	
17	(250)	0.5	250		140	2.10		2.70	
18		(7.0)	250		140	1.60	3.0	2.65	
19		(6.0)	280				3.4	(2.55)	
20		(5.6)	300				3.1	----	
21		(5.0)	305				4.0	----	
22		(6.6)	320				3.2	(2.40)	
23		(6.2)	350				3.4	----	

Time: 15.0°E.

Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 57									
De Bilt, Holland (52.1°N, 5.2°E)									
March 1959									
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	295	6.4						2.60	
01	295	6.3					2.0	2.50	
02	300	5.0					2.1	2.50	
03	305	5.5						2.50	
04	300	5.0						2.60	
05	280	4.6				2.2		2.60	
06	260	5.8	----	----	1.8	2.2		2.80	
07	230	8.0	----	----	105	2.4	2.6	3.05	
08	240	8.9	225	4.0	100	3.0	3.2	3.00	
09	230	9.8	220	4.5	100	3.2	3.2	2.95	
10	250	10.8	220	4.6	100	3.4	3.6	2.90	
11	250	11.7	220	4.9	100	3.5		2.85	
12	230	11.7	220	5.0	100	3.6	3.9	2.85	
13	230	11.9	210	4.8	100	3.5		2.80	
14	230	11.6	225	5.1	100	3.4		2.80	
15	235	11.4	225	5.5	100	3.2		2.85	
16	230	11.2	----	----	105	2.8		2.90	
17	240	10.9			110	2.3		2.90	
18	230	10.7			----	1.6	1.9	2.90	
19	225	0.7			----			2.05	
20	240	8.0						2.75	
21	250	7.1						2.75	
22	270	6.8						2.60	
23	290	6.5						2.60	

Time: 0.0°.

Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 59									
Boulder, Colorado (40.0°N, 105.3°W)									
November 1953*									
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00		4.8	275				2.5	2.75	
01		4.9	290				2.7	2.75	
02		4.7	275					2.75	
03		4.6	295					2.65	
04		4.6	290					2.70	
05		4.4	260					2.70	
06		4.5	275					2.75	
07		7.2	240					3.10	
08		10.6	225		(115)	2.58		3.20	
09		12.5	220		<111	3.00		3.15	
10		14.25	220		105	3.20		3.10	
11		15.05	215		103	3.40		3.00	
12		14.9	215		104	3.50		2.90	
13		14.7	220		105	3.42		2.80	
14		14.4	225		106	3.20		2.80	
15		14.2	225		109	2.80	3.1	2.80	
16		14.0	<230		<116	2.25	2.0	2.90	
17		12.8	220		----		2.6	2.90	
18		11.4	220				2.3	3.00	
19		9.6	215					3.00	
20		7.7	220					3.00	
21		6.1	235				2.7	3.60	
22		5.3	250					2.95	
23		4.7	260				2.5	2.90	

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

*Observations taken 15th through 30th only.

Table 56									
Churchill, Canada (58.8°N, 94.2°W)									
March 1959									
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2	
08		(5.2)	300				----	4.5	
01		6.0	310				2.0	4.3	
02		(5.5)	320				1.6	4.5	
03		4.8	330			140	2.0	3.8	
04		4.8	370			130	2.2	3.8	
05		(4.8)	360			125	2.1	4.1	
06		5.0	340			120	2.3	4.3	
07	----	5.6	300	----	115	2.7	4.0	----	
08	----	6.6	280	----	115	3.0	3.8	----	(2.8)
09	(620)	7.4	250	4.4	110	3.0	4.4	(2.9)	
10	(700)	8.2	250	4.3	110	3.2	4.2	(2.8)	
11	(440)	9.0	240	4.5	110	3.3	3.8	----	
12	(450)	9.0	240	4.7	110	3.4		2.7	
13	(420)	10.6	240	4.6	110	3.4		2.7	
14	(400)	10.9	240	4.6	110	3.2		(2.7)	
15	(480)	10.8	240	4.4	110	3.1	3.3	(2.7)	
16	(450)	10.4	250	----	115	3.0		(2.7)	
17	----	10.2	250	----	120	2.6	3.0	----	
18	----	9.0	260	----	130	2.1	3.3	----	
19		7.0	280		125	2.1	4.0	----	
20		6.4	290		130	2.0	4.3		
21		6.0	300		125	2.0	4.1		
22		5.6	320		140	1.9	5.0		
23		5.5	290		----	1.8	5.2		

Time: 90.0°W.

Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 58									
Oouder, Colorado (40.0°N, 105.3°W)									
December 1958									
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2	
00		4.4	265					2.00	
01		4.25	(265)					2.80	
02		4.15	270					2.82	
03		4.1	265					2.80	
04		4.0	<280					2.72	
05		3.9	<280					2.72	
06		3.85	(280)					2.80	
07		5.2	250				3.2	2.90	
08		9.0	225		119	2.38		3.25	
09		11.2	220		111	2.85		3.15	
10	----	13.0	225		111	3.20	3.2	3.10	
11	----	13.8	225		109	3.40		3.05	
12	----	13.7	225		113	3.50		2.95	
13	----	13.6	225		<114	3.40		2.90	
14	----	13.25	230		113	3.20		2.05	
15		13.0	230		115	2.80		2.88	
16		12.55	230		125	2.30		2.90	
17		11.3	220					2.90	
18		10.0	225					2.95	
19		8.5	220					3.00	
20		6.6	<230					2.95	
21		5.4	245					2.95	
22		4.9	260					2.90	
23		4.7	(260)					2.80	

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 60								
Cape Canaveral, Florida (20.4°N, 00.6°W)								
September 1950								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.9	<300					2.65
01		7.5	290					2.65
02		7.4	285					2.70
03		6.9	200					2.60
04		6.3	<285					2.55
05		6.0	<300					2.55
06		6.75	280					2.70
07	---	9.3	250		<129	(2.70)		3.00
08	---	11.15	230	---	115	3.30		2.92
09	---	11.7	220	---	112	3.75		2.05
10	---	12.0	220	---	110	4.00		2.70
11	---	12.3	220	---	109	(4.10)		2.65
12	(370)	12.6	220	---	109	(4.20)		2.60
13	395	12.3	220	(7.0)	111	4.20		2.55
14	(380)	12.35	230	(6.8)	112	4.10		2.55
15	---	12.15	230	---	111	3.85	4.0	2.55
16	---	11.9	235	---	111	3.50	3.7	2.55
17		11.6	245		<118	(3.00)	3.4	2.65
18		11.0	250		---	---		2.65
19		9.9	245					2.65
20		8.8	<275					2.60
21		8.6	<290					2.60
22		8.4	(205)					2.60
23		0.0	<300					2.60

Table 61

Concepcion, Chile (36.6°S, 73.0°W) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.3	280					2.75
01		10.45	270					2.90
02		9.45	250					3.00
03		7.75	225					3.05
04		6.5	220					2.50
05		6.3	200					2.50
06		8.15	260	<161	2.10			2.90
07		11.0	230	111	2.90			3.10
08		12.6	230	107	3.40			3.05
09		13.3	225	109	3.75			3.00
10		13.7	220	109	3.95	4.1		2.05
11		13.7	(220)	109	(4.02)	4.4		2.00
12	(365)	13.8	<220	---	109	4.02	4.6	2.65
13	---	13.75	<230	---	111	4.00	4.5	2.65
14	(360)	13.9	230	---	109	3.90	4.2	2.60
15	---	13.9	230		110	3.60		2.65
16		14.0	240		111	3.15	3.4	2.70
17		13.7	260		110	2.45	2.6	2.75
18		13.35	265				2.0	2.75
19		12.8	205					2.60
20		12.45	290					2.58
21		11.8	300					2.55
22		11.2	290					2.65
23		10.7	290					2.68

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 63

Graz, Austria (47.1°N, 15.5°E) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>6.6	335					
01		(6.4)	335					
02		(5.6)	340					
03		>4.6	350					
04		>4.7	350					
05		>4.6	320					
06		(5.0)	290					
07		(7.7)	250					
08		>8.9	230					
09		>9.3	230				3.3	
10		>9.7	230	110	3.6			
11		>10.3	230				3.4	
12		>9.9	230	115				
13		>9.6	230	110	3.7			
14		>10.5	240	120	3.6			
15		>9.4	235	115	(3.4)			
16		>9.5	240	---	(3.1)			
17		>9.3	240					
18		>8.9	240					
19		>8.8	240					
20		>8.0	260					
21		>6.9	280					
22		>6.6	290					
23		>6.6	310					

Time: 15.0°E.

Sweep: 2.5 Mc to 11.5 Mc in 2 minutes or 2.5 Mc to 21.0 Mc in 50 seconds.

Table 65

Nurmijarvi, Finland (60.5°N, 24.6°E) June 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(7.3)						(2.60)
01		7.0					(3.6)	2.60
02		(7.0)					(3.0)	2.60
03		(7.0)					1.9	2.60
04		(7.0)					2.4	2.60
05		(6.9)					3.0	2.60
06		7.1	(4.7)			2.70	3.2	2.60
07		7.2	(5.0)			3.10	3.4	2.65
08		7.3	5.1			3.40	3.8	2.60
09		7.5	5.3			3.50	4.0	2.55
10		7.6	5.4			3.65	4.2	2.60
11		7.3	5.6			3.90	4.4	2.60
12		7.3	5.6			---	4.0	2.50
13		7.0	5.6			---	4.2	2.55
14		6.8	5.6			3.60	4.2	2.50
15		7.0	5.4			---	4.0	2.60
16		6.9	5.4			3.50		2.60
17		6.7	5.0			---		2.60
18		7.0	---			---	4.5	2.70
19		7.3	---			---	3.0	2.70
20		7.1	---			---	4.4	2.75
21		7.3	---			---	(4.7)	2.00
22		7.1					(3.4)	---
23		(7.1)					(2.4)	(2.60)

Time: 30.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 1 minute.

Table 62

Watheroo, W. Australia (30.3°S, 115.9°E) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.9	(250)				1.8	2.85
01		6.8	<255				1.8	2.90
02		6.7	(250)				1.7	2.90
03		6.5	<255				2.9	3.05
04		>6.0	<250				1.5	<2.95
05		6.0	<270					(2.70)
06		6.0	(250)					2.90
07		(7.7)	245			120	2.10	---
08		---	230			100	2.90	3.0
09		---	225			100	3.30	3.7
10		---	225			100	3.60	4.0
11		---	(235)			100	3.80	4.1
12		---	<240			100	3.80	---
13		---	<245			100	3.90	---
14		---	<250			100	3.75	---
15		---	230			100	3.55	3.8
16		---	240			100	3.20	3.8
17		---	240			105	2.60	3.0
18		---	240			100	1.65	1.9
19		---	(240)					2.4
20		---	<245					2.6
21		>7.1	(240)				1.4	<3.05
22		>7.0	<250				1.7	<2.95
23		>6.9	<250				2.8	2.85

Time: 120.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 64

Singapore, British Malaya (1.3°N, 103.0°E) November 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.4	300			140	---	<1.3
01		11.4	300			145	---	<1.1
02		11.0	295			130	---	<1.1
03		9.0	270			120	---	<1.0
04		9.0	260			110	---	<1.1
05		7.7	250			135	1.10	2.70
06		8.6	290			145	2.00	2.60
07		10.6	255			120	3.10	2.60
08		11.5	250			115	3.70	2.30
09		12.3	240			110	4.05	2.00
10		13.0	235	(6.5)		110	4.30	1.90
11	605	13.1	230		5.9	110	4.40	1.75
12	575	13.0	220		6.2	110	4.40	1.75
13	540	12.8	220		5.9	110	4.35	1.70
14	670	12.6	230		5.6	105	4.15	4.6
15	620	12.7	245		5.2	105	3.90	1.60
16		12.6	255	(4.8)		110	3.45	1.80
17		12.5	290			115	2.75	1.75
18		12.3	345				1.65	3.4
19		(11.9)	415					3.1
20		(11.7)	400					2.0
21		>11.5	340		140	---		2.8
22		>11.4	385		125	---		2.2
23		11.5	295			---		<1.4

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 66

Nurmijarvi, Finland (60.5°N, 24.6°E) May 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.3						(2.60)
01		6.8						(2.50)
02		6.7						(2.50)
03		(6.6)					(3.0)	(2.55)
04		6.9					(3.2)	2.60
05		6.6						2.70
06		7.2				2.15		2.70
07		7.2				2.90		2.70
08		7.4				---		2.60
09		7.4				5.3	3.35	2.60
10		7.7				5.5	3.50	2.60
11		7.7				5.6	3.00	4.0
12		8.0				5.7	3.70	3.9
13		8.0				5.8	---	2.50
14		8.0				5.8	---	2.55
15		0.0				5.6	---	2.60
16		7.9				5.6	---	2.60
17		7.9				---	---	2.70
18		7.9				---	---	2.70
19		7.8				---	---	2.75
20		7.7				---	---	2.50
21		7.4				---	---	2.70
22		7.5				---	---	2.60
23		7.6				---	---	2.60

Time: 30.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 1 minute.

Table 67

June 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		1.5	---				2.4	(3.20)
01		1.6	<315				2.4	2.95
02		(1.6)	<305				2.3	(3.00)
03		1.7	<295				2.7	2.05
04		(1.7)	<315				1.8	2.75
05		(1.8)	<320				1.6	2.70
06		2.0	<310				1.6	2.60
07		2.4	(260)				3.2	2.70
08		5.0	<235				1.7	3.15
09		7.1	220	---	---	2.20		3.35
10		8.2	220	---	105	2.70		3.25
11	---	9.6	220	---	111	2.90		3.05
12		11.2	220		110	3.00	3.2	3.10
13		>12.2	220		110	2.95	3.2	3.05
14		11.9	225		---	2.90	2.9	3.05
15		11.8	215		---	2.50		<3.15
16		10.4	205		---		1.6	3.20
17		8.0	200		---		1.6	3.20
18		6.1	<215				1.5	3.30
19		3.8	<205				1.6	3.40
20		1.6	---				1.5	3.10
21		1.4	---					(3.15)
22		1.5	---				2.0	3.15
23		(1.5)	---				1.6	2.95

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 68

May 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		1.7	<300				1.6	2.85
01		2.0	<305				1.6	2.90
02		1.8	<305				2.2	2.95
03		1.8	<305				2.0	2.90
04		1.8	310				1.6	2.75
05		1.8	320				1.6	(2.70)
06		2.1	<300					2.60
07		6.0	265					2.70
08		6.0	230					3.25
09		8.2	220		---	2.15		3.25
10		9.9	220		110	2.90		3.15
11		11.2	220		110	3.10		3.10
12		12.0	220		110	3.20		3.10
13		(12.1)	220		110	3.10		(3.10)
14		>12.6	220		110	3.00		3.05
15		>12.4	215		110	2.70		3.10
16		11.4	210		---	2.25		3.15
17		9.9	205		---			3.15
18		8.1	210					3.20
19		4.6	205					3.30
20		3.5	<220					3.35
21		2.8	250				1.5	3.15
22		2.1	245				1.6	3.10
23		1.8	<260				1.6	3.00

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 69

April 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		2.4	<285				1.6	2.70
01		2.3	275				1.6	2.70
02		2.4	<310					2.60
03		2.6	<340				1.6	2.60
04		2.2	(355)				1.8	2.60
05		2.2	(360)					2.65
06		2.8	(320)				1.6	2.60
07		5.5	250			1.85		3.05
08	---	7.8	235	----	109	2.50		3.25
09	---	8.8	225	----	110	2.85		3.15
10	---	10.4	225	4.90	110	3.15		2.95
11	---	10.5	220	4.55	108	3.35		2.90
12	---	12.1	225	4.85	109	3.40		(2.90)
13	---	>12.5	220	4.75	107	3.35		2.95
14	---	12.1	225	----	110	3.30		<3.00
15	---	>12.5	220	----	109	3.10		3.00
16	---	>12.3	220		---	2.70		3.00
17	---	11.6	220		---	2.10		3.05
18	---	10.6	215		----			3.10
19		8.0	210					3.10
20		6.3	220					3.15
21		4.4	230					3.05
22		3.3	255				1.5	2.95
23		2.8	<260					2.95

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 70

March 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		3.3	<300				1.5	2.65
01		3.2	300				2.0	2.60
02		3.1	<320				1.6	2.60
03		2.8	<325				1.6	2.55
04		2.8	<330				1.7	2.45
05		2.6	<320					2.60
06		4.2	<275		---	----		2.85
07		5.7	240		107	2.35		3.05
08	(310)	6.4	225	4.10	105	2.75		2.90
09	(340)	6.8	220	4.75	<108	3.10		2.80
10	390	7.1	<220	5.00	101	3.30		2.65
11	365	8.4	220	5.30	100	3.50		2.60
12	360	9.4	215	5.25	101	3.50		2.60
13	330	9.8	220	5.25	101	3.50		2.65
14	310	10.0	220	5.00	101	3.50		2.65
15	310	9.5	220	5.00	101	3.30		2.70
16	(290)	9.4	230	4.60	105	3.00		2.80
17		8.6	230		102	2.55		2.95
18		7.9	230		---	----		3.00
19		7.1	230				1.4	2.95
20		5.8	235				1.7	3.00
21		5.0	230				2.5	3.05
22		3.7	<250				1.8	2.95
23		3.3	<275				1.7	2.75

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 71

February 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		3.0	<270				3.1	2.75
01		2.9	<280				2.6	2.70
02		2.8	300				3.2	2.55
03		2.6	<315				3.2	2.55
04		2.4	320				3.6	2.50
05		3.3	290				3.5	2.65
06	(480)	4.6	245	3.50	105	2.20	3.0	2.75
07	415	5.5	230	4.10	105	2.80	2.9	2.70
08	410	5.9	220	4.60	103	3.15	3.3	2.60
09	430	6.4	220	4.75	102	3.35	3.8	2.55
10	425	6.6	200	4.80	101	3.50		2.55
11	390	7.1	(200)	5.00	101	3.60	4.6	2.55
12	400	7.3	210	5.10	101	3.70	5.0	2.60
13	375	7.9	220	5.00	105	3.60	4.4	2.60
14	345	8.0	220	5.10	101	3.60	4.6	2.70
15	330	8.0	210	5.00	101	3.50	4.8	2.70
16	315	7.5	220	4.90	104	3.30	3.9	2.80
17	290	7.2	220	4.40	101	3.00	3.4	2.85
18	---	6.9	230	----	109	2.50	3.5	3.05
19		6.6	235		---	----	3.0	3.10
20		6.0	230				2.0	3.10
21		5.3	230				3.3	3.05
22		4.4	<240				3.4	2.95
23		3.7	<250				3.4	2.85

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 72

January 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		3.3	<300				3.2	2.65
01		3.0	375				3.3	2.55
02		3.0	390				2.2	2.45
03		3.0	400				2.2	2.50
04		3.2	325				1.6	2.60
05	400	4.2	270	3.25	---	----	1.8	2.70
06	440	4.9	240	3.75	105	2.50		2.50
07	440	5.4	230	4.30	108	2.85	3.1	2.50
08	450	5.8	210	4.50	106	3.25	3.3	2.50
09	480	6.0	205	4.70	105	3.40	3.4	2.50
10	500	6.0	210	4.80	107	3.50	4.2	2.40
11	460	6.2	(200)	4.90	102	3.60	4.3	2.40
12	425	6.2	(210)	4.95	111	3.70	3.9	2.45
13	455	6.3	220	4.95	102	3.70	4.0	2.50
14	450	6.2	(220)	4.95	105	3.65		2.45
15	410	6.2	220	4.85	104	3.50		2.60
16	400	6.2	(215)	4.85	100	3.30	3.6	2.60
17	380	6.1	(220)	4.60	103	3.05	3.3	2.70
18	(305)	6.0	230	4.20	108	2.65	3.4	2.85
19	---	6.2	245	----	---	----	2.20	3.5
20		5.6	245		---	----	2.8	3.05
21		5.0	250				1.6	2.85
22		4.4	265				1.9	2.85
23		3.5	285				3.2	2.60

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

US COM-NBS-BL

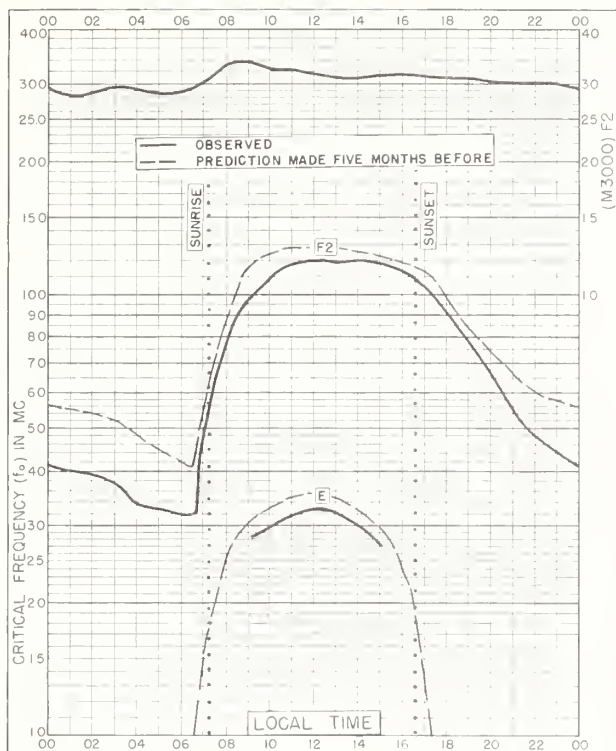


Fig. 1. FT. MONMOUTH, NEW JERSEY
40.4°N, 74.1°W
DECEMBER 1959

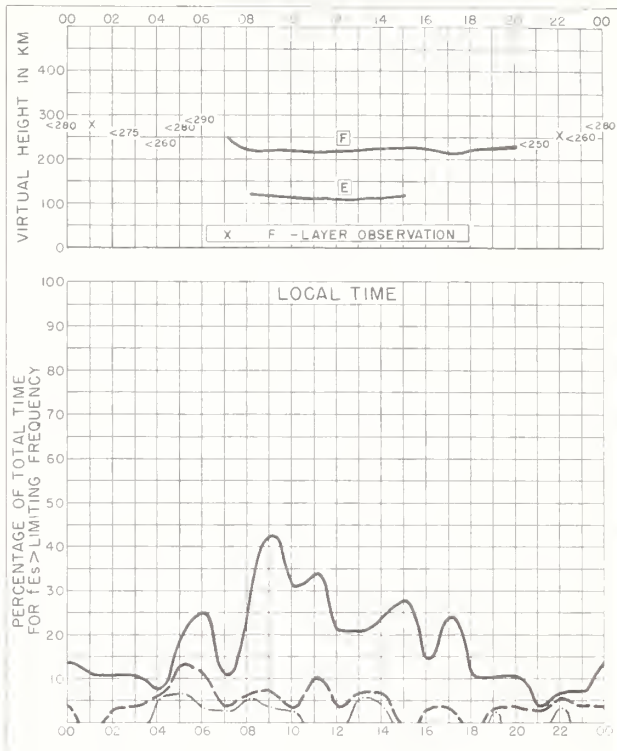


Fig. 2. FT. MONMOUTH, NEW JERSEY
DECEMBER 1959

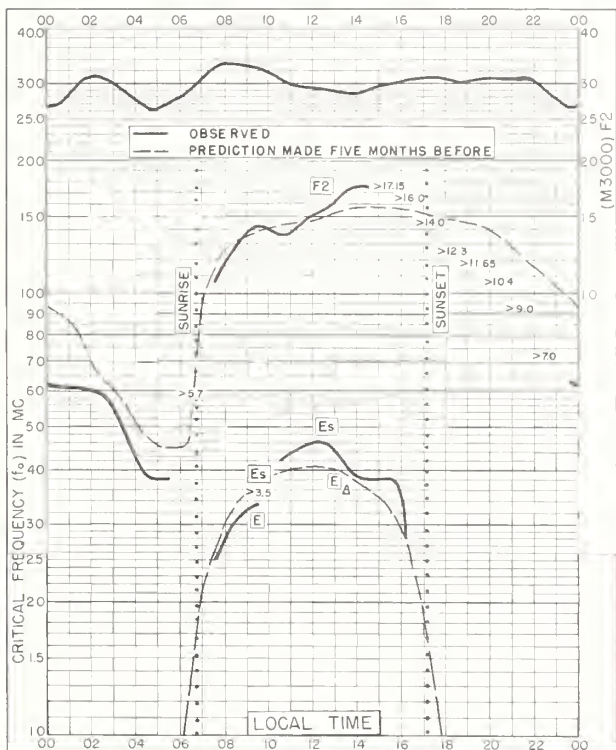


Fig. 3. OKINAWA I.
26.3°N, 127.8°E
DECEMBER 1959

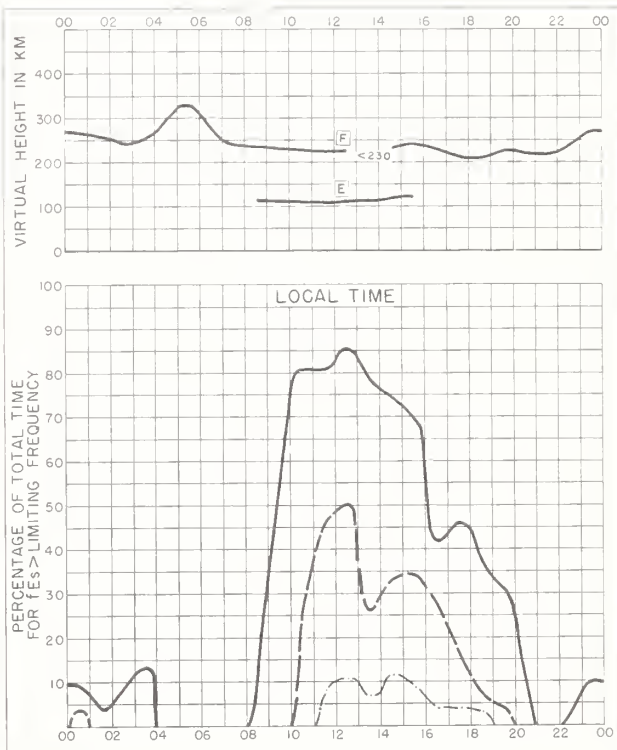


Fig. 4. OKINAWA I.
DECEMBER 1959

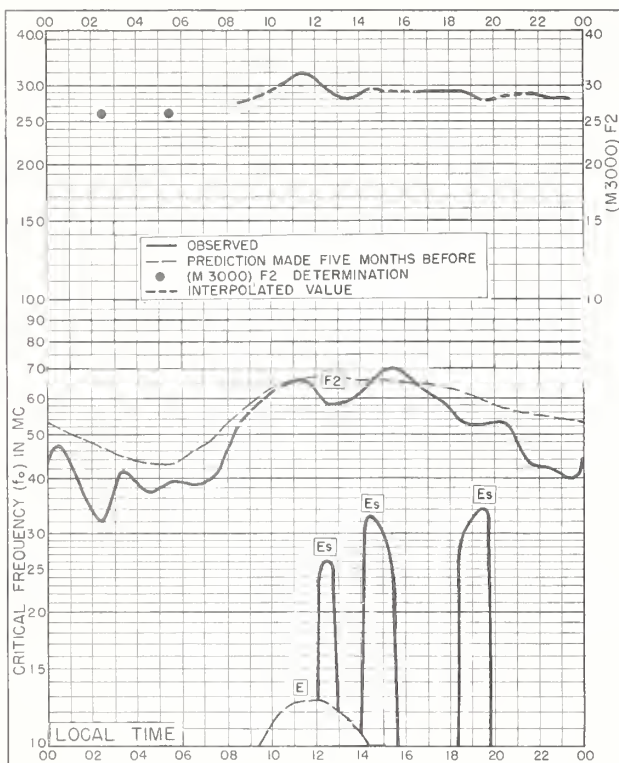


Fig. 5. THULE, GREENLAND
76.6°N, 68.7°W NOVEMBER 1959

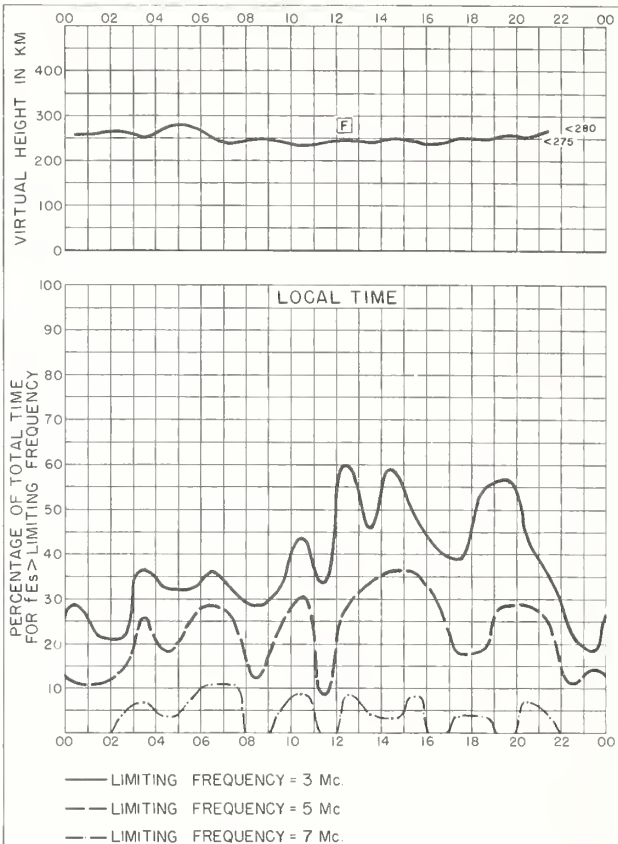


Fig. 6. THULE, GREENLAND NOVEMBER 1959

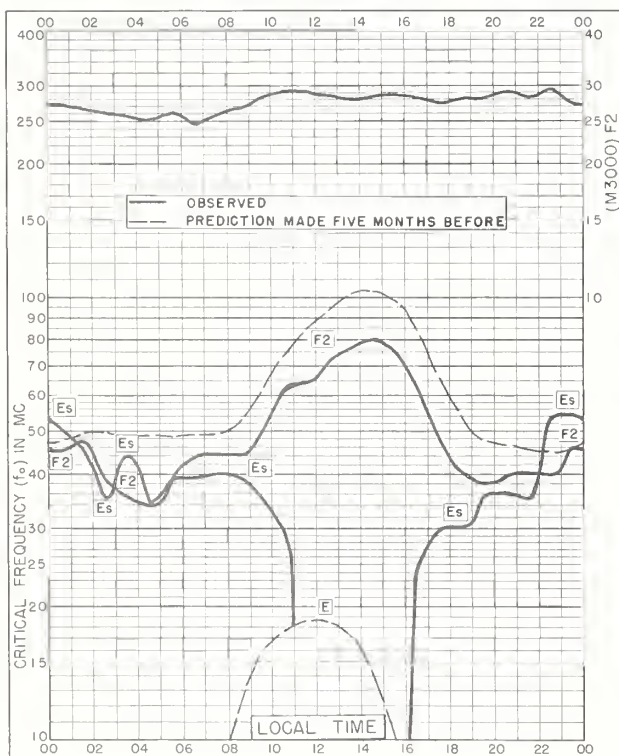


Fig. 7. POINT BARROW, ALASKA
71.3°N, 156.8°W NOVEMBER 1959

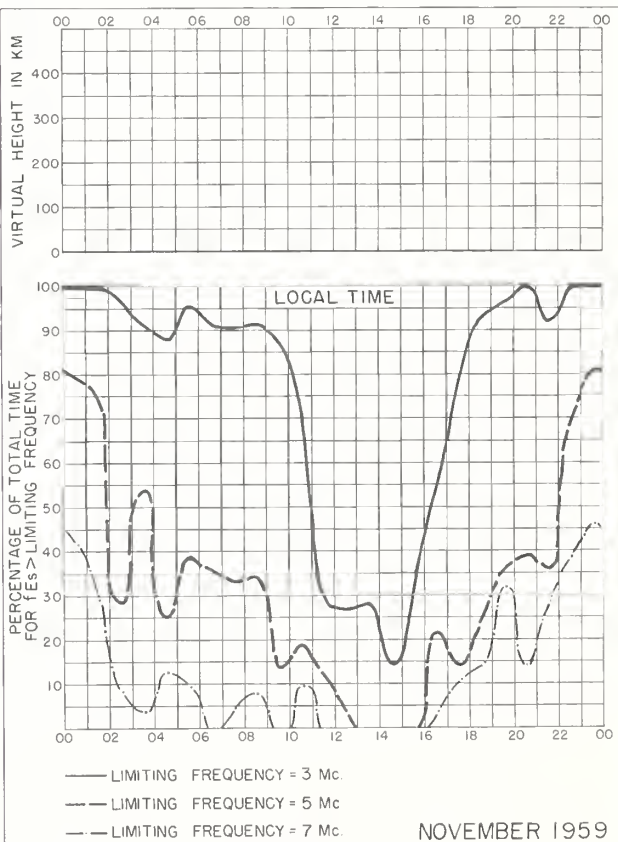


Fig. 8. POINT BARROW, ALASKA

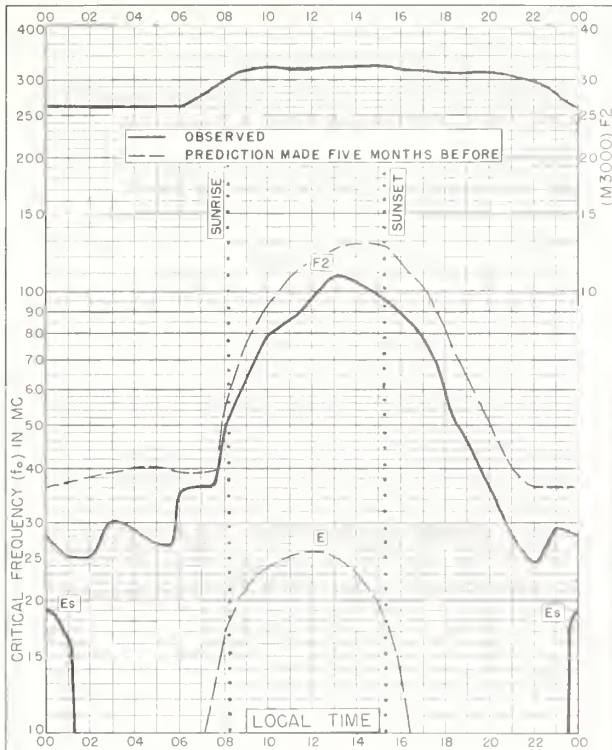


Fig. 9. ANCHORAGE, ALASKA
61.2°N, 149.9°W NOVEMBER 1959

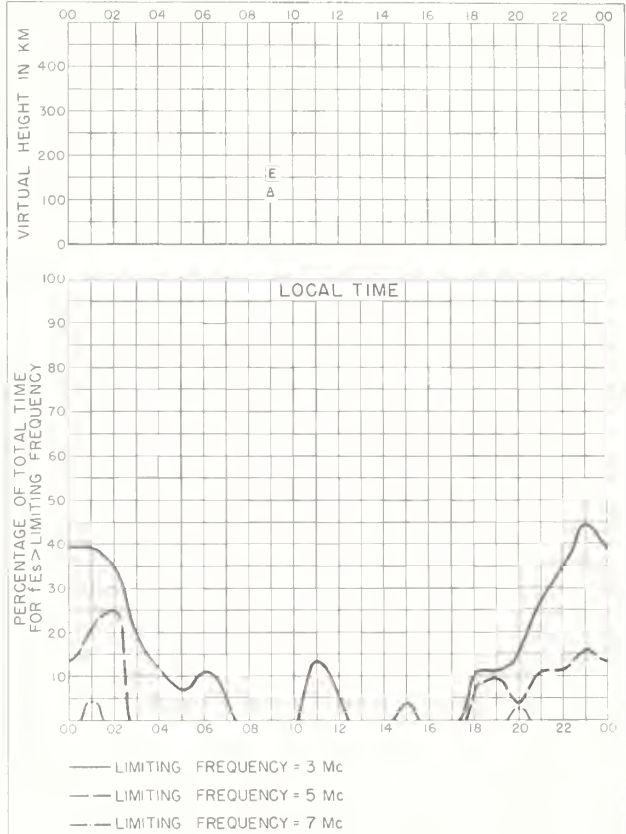


Fig. 10. ANCHORAGE, ALASKA NOVEMBER 1959

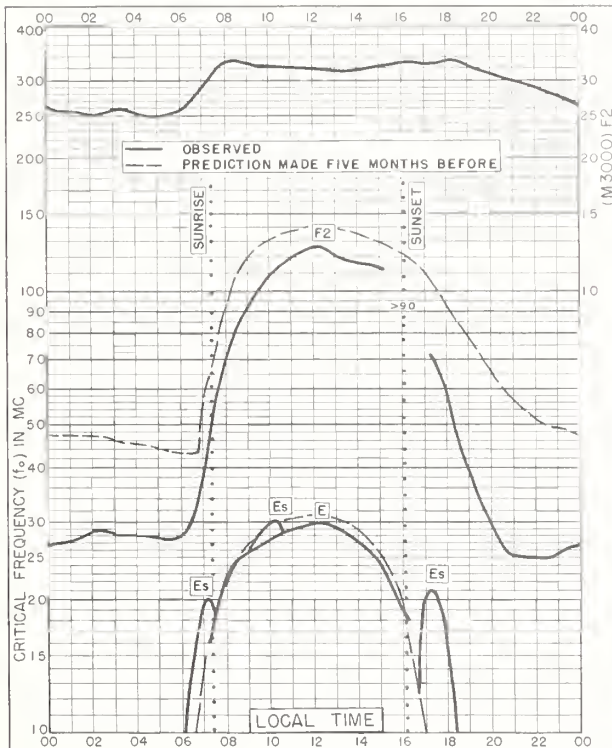


Fig. 11. ADAK, ALASKA
51.9°N, 176.6°W NOVEMBER 1959

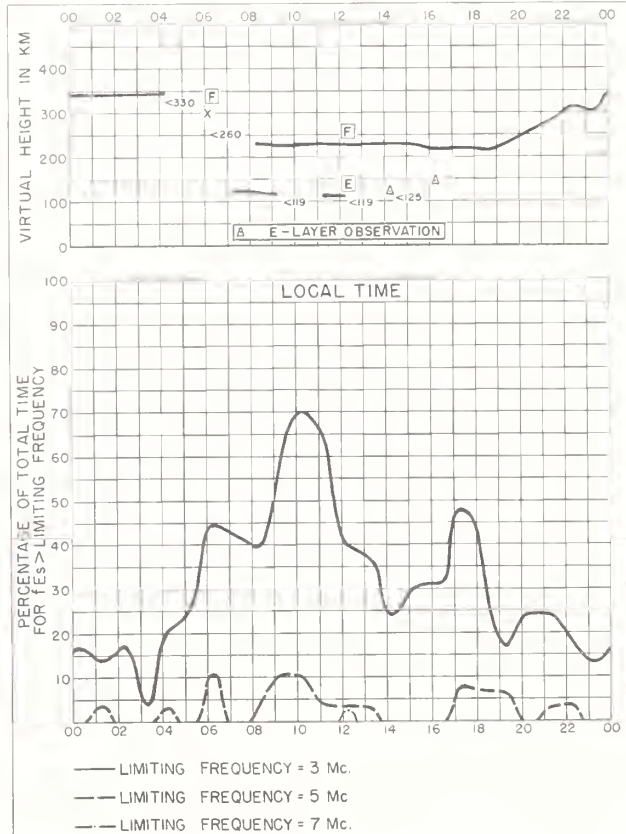


Fig. 12. ADAK, ALASKA NOVEMBER 1959

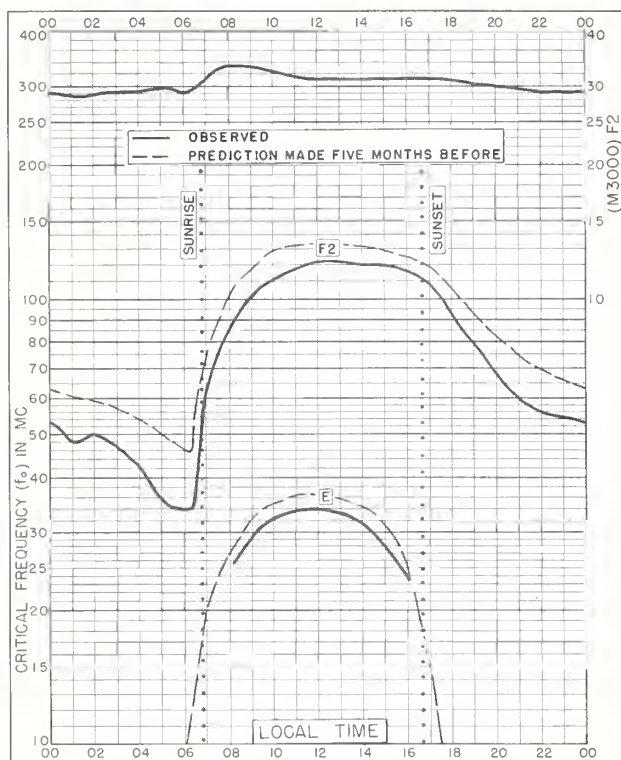


Fig. 13. FT. MONMOUTH, NEW JERSEY
40.4°N, 74.1°W
NOVEMBER 1959

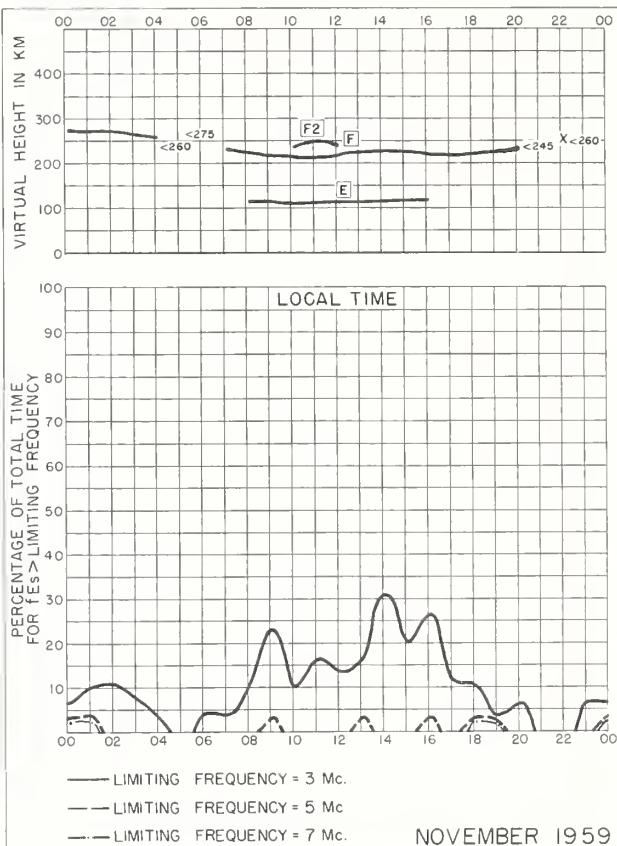


Fig. 14. FT. MONMOUTH, NEW JERSEY
NOVEMBER 1959

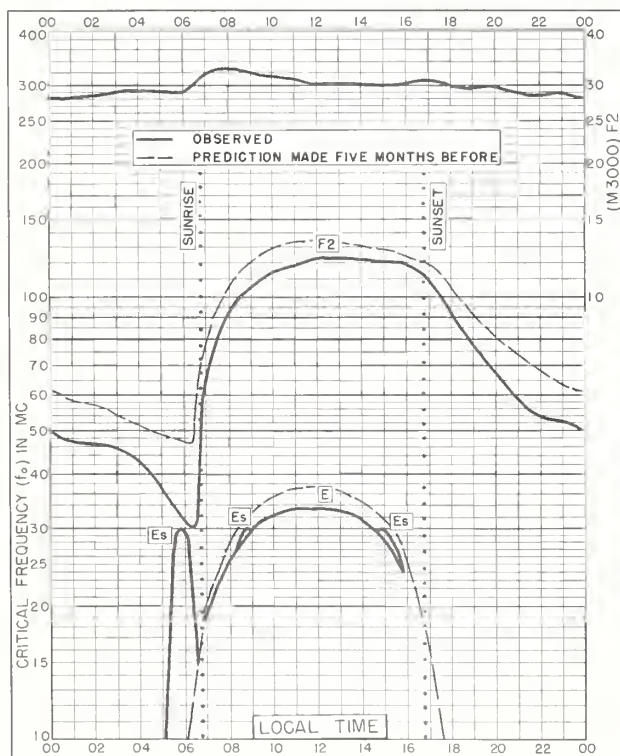


Fig. 15. WASHINGTON, D.C.
38.7°N, 77.1°W
NOVEMBER 1959

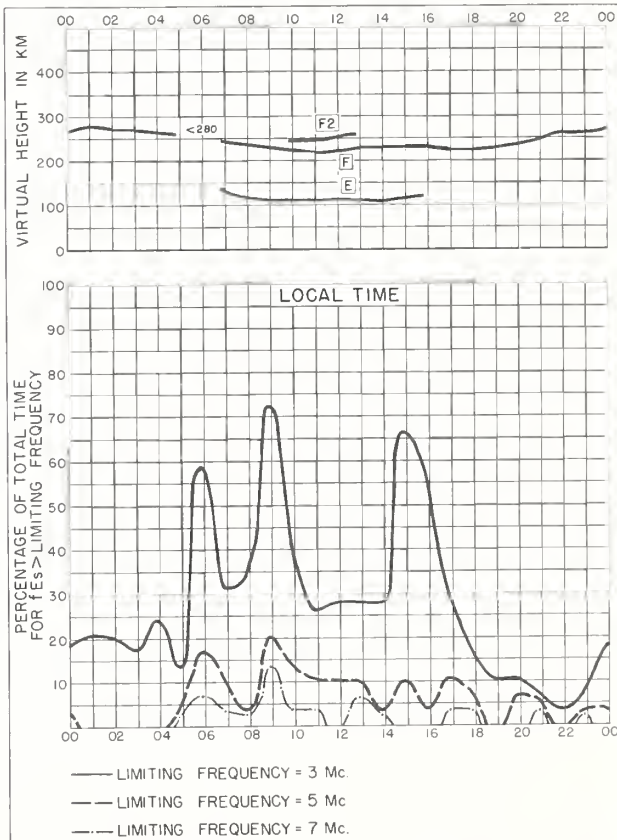


Fig. 16. WASHINGTON, D.C.
NOVEMBER 1959

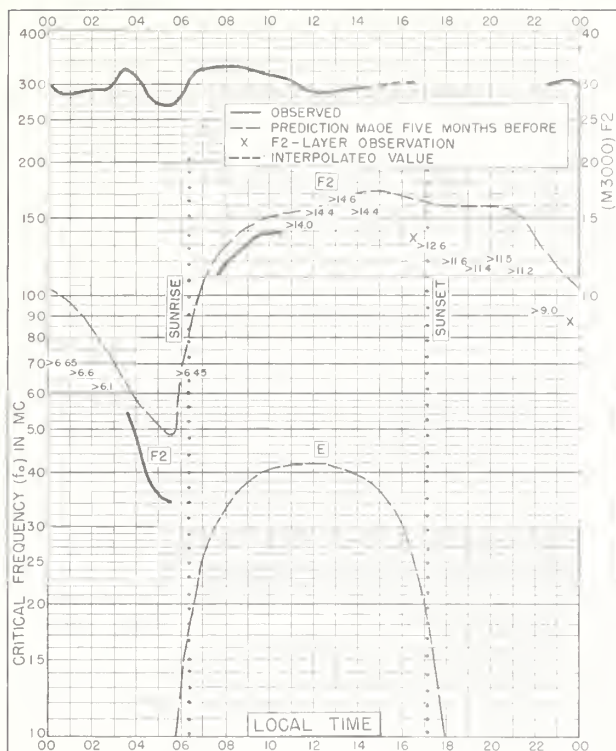


Fig. 17. OKINAWA I.
26.3°N, 127.8°E

NOVEMBER 1959

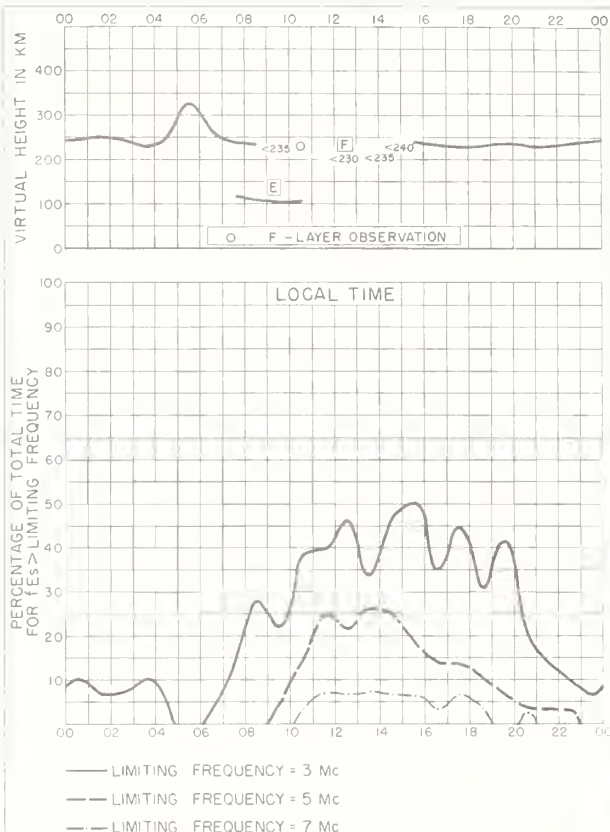


Fig. 18. OKINAWA I.

NOVEMBER 1959

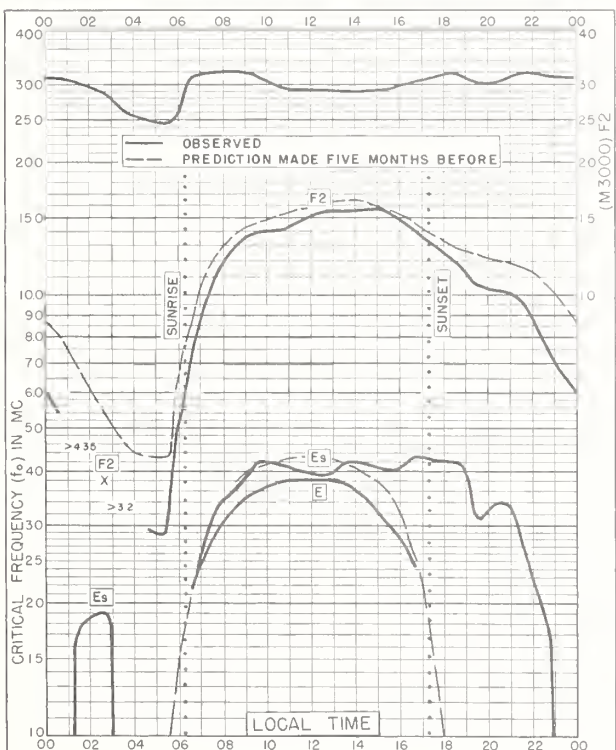


Fig. 19. MAUI, HAWAII
20.8°N, 156.5°W

NOVEMBER 1959

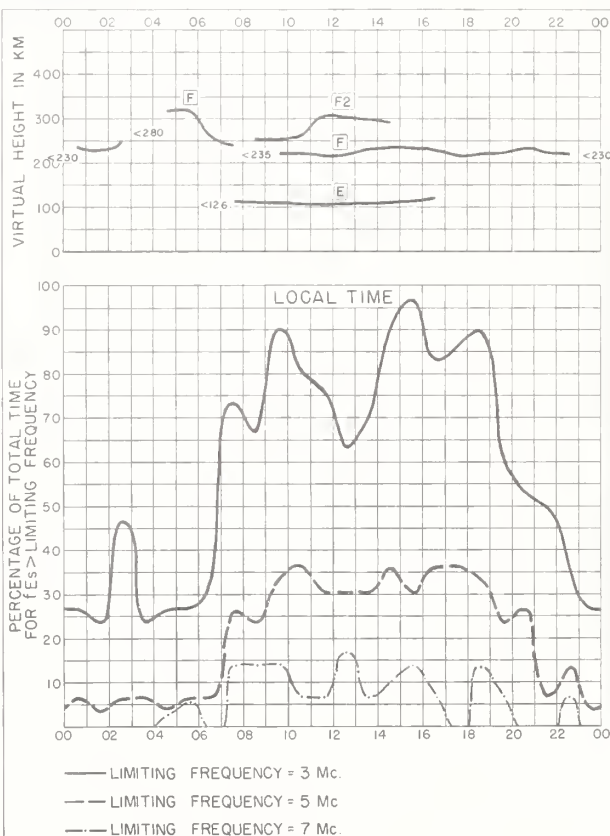


Fig. 20. MAUI, HAWAII

NOVEMBER 1959

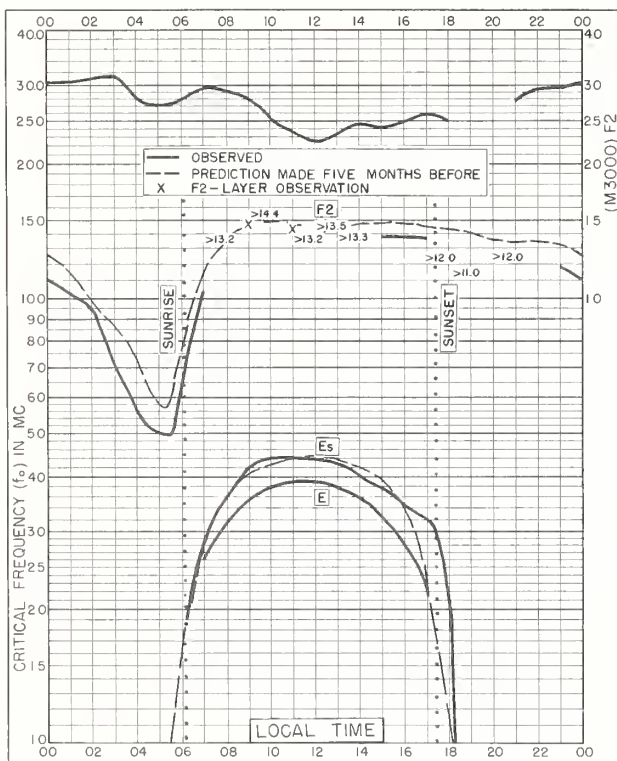


Fig. 21. BAGUIO, P. I.

16.4°N, 120.6°E

NOVEMBER 1959

NBS 503

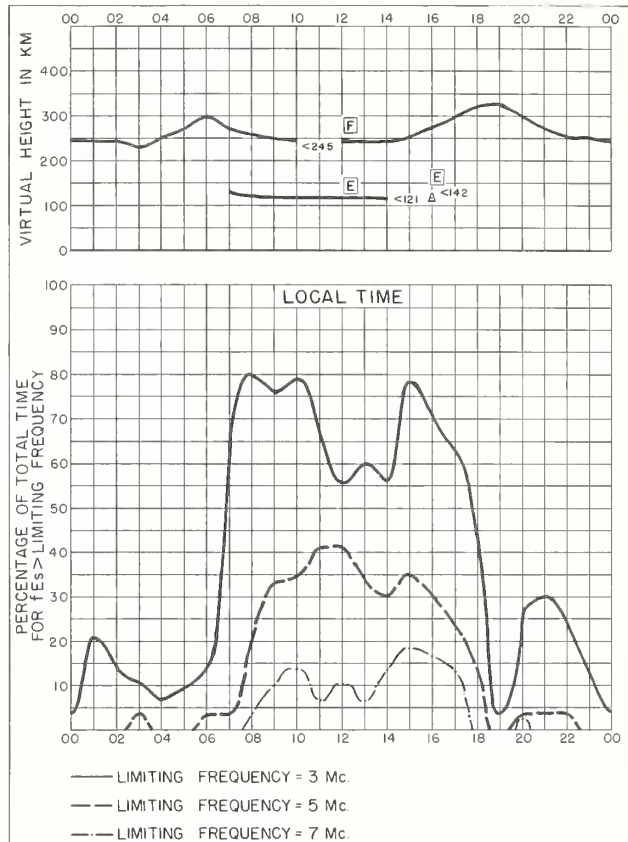


Fig. 22. BAGUIO, P. I.

NOVEMBER 1959

NBS 490

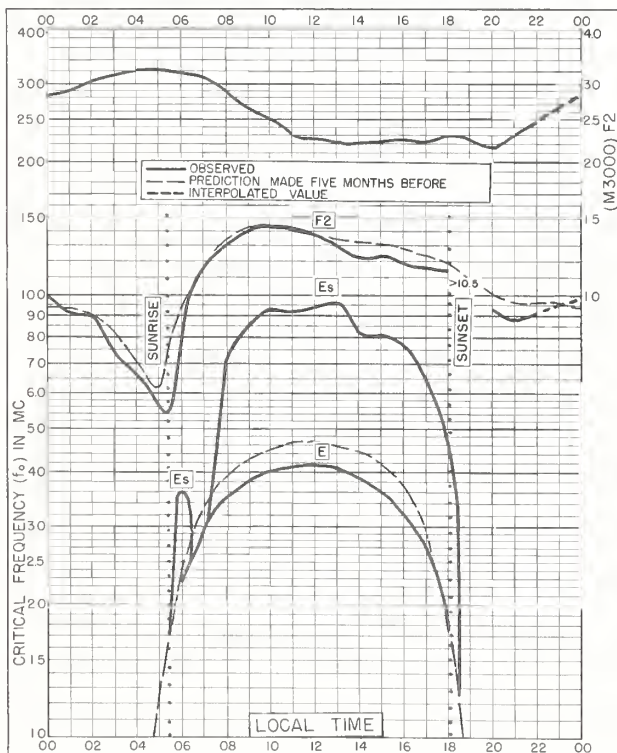


Fig. 23. HUANCAYO, PERU

12.0°S, 75.3°W

NOVEMBER 1959

NBS 503

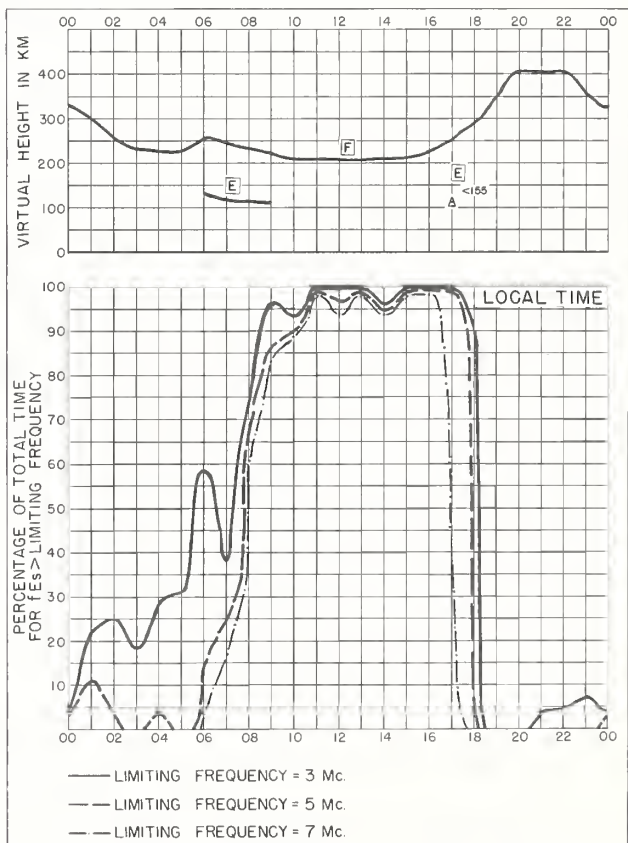


Fig. 24. HUANCAYO, PERU

NOVEMBER 1959

NBS 490

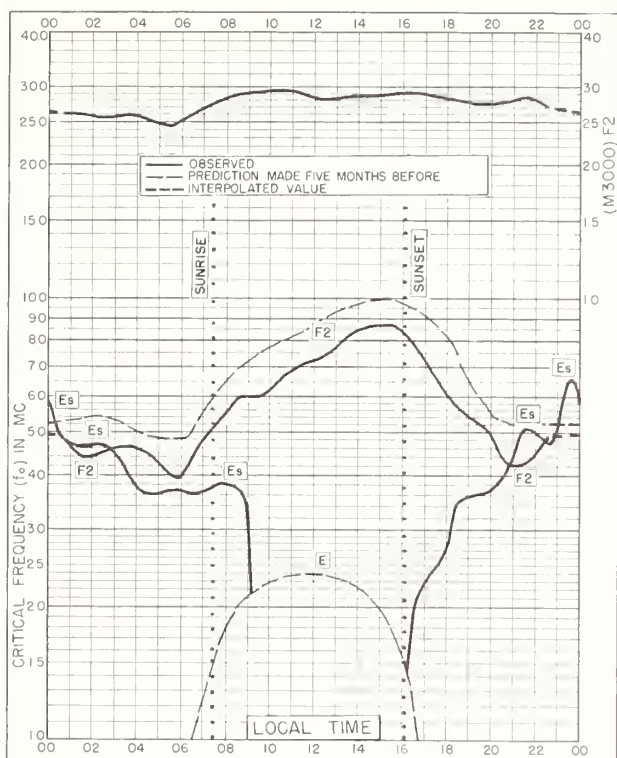


Fig. 25. POINT BARROW, ALASKA
71.3°N, 156.8°W
OCTOBER 1959

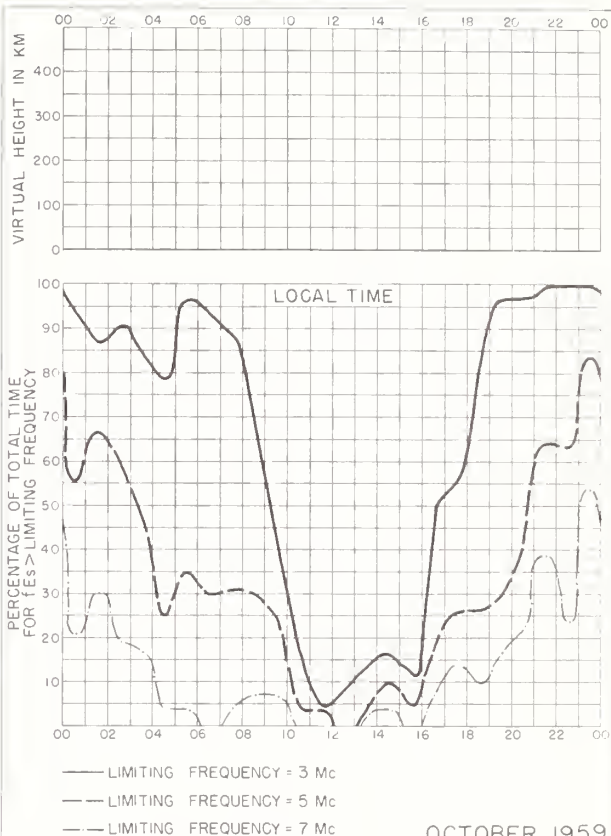


Fig. 26. POINT BARROW, ALASKA

OCTOBER 1959

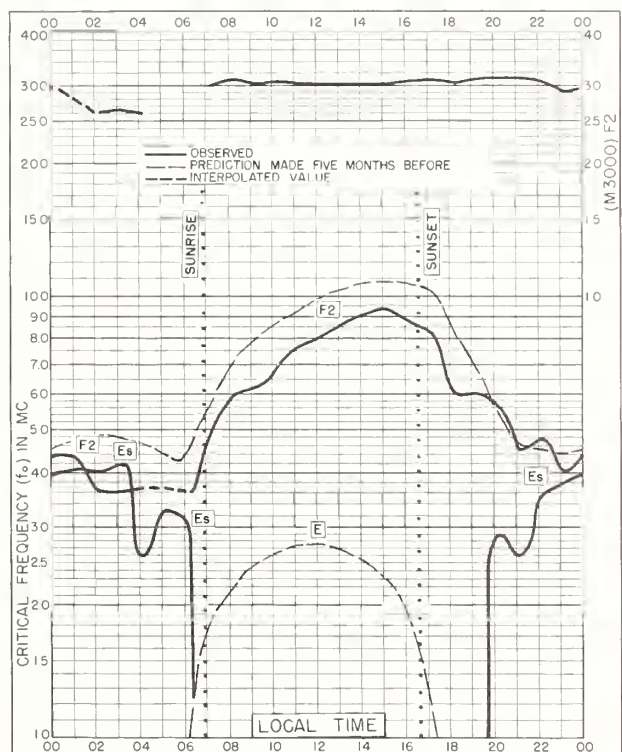


Fig. 27. FAIRBANKS, ALASKA
64.9°N, 147.8°W
OCTOBER 1959

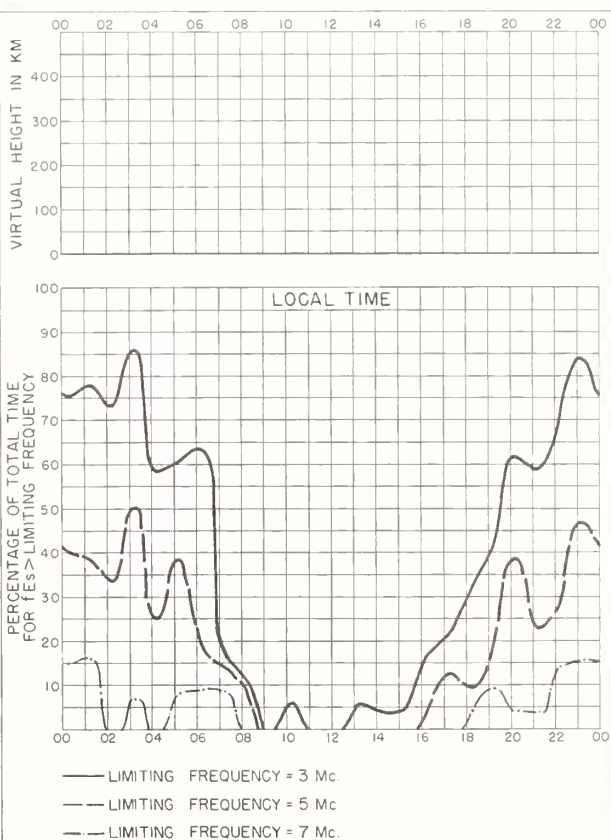
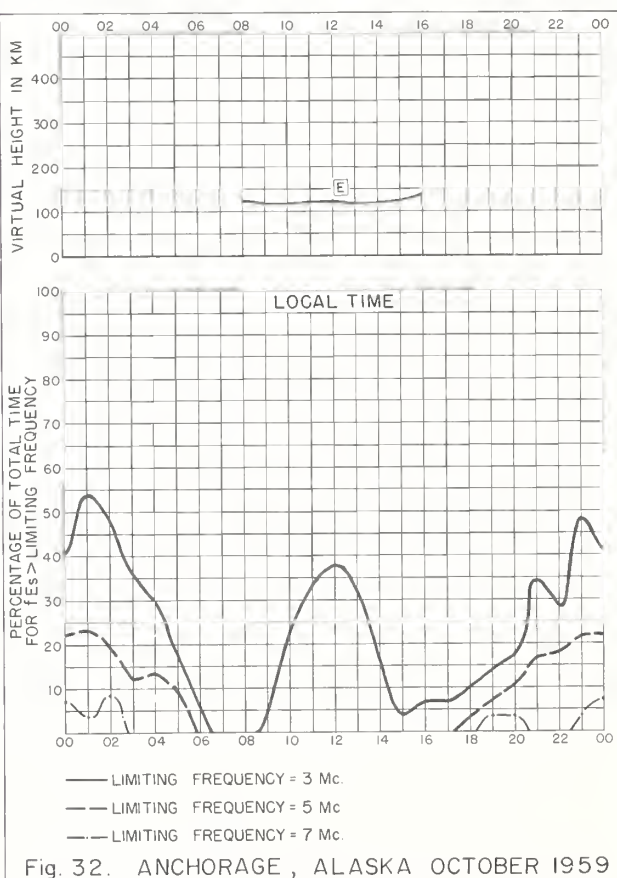
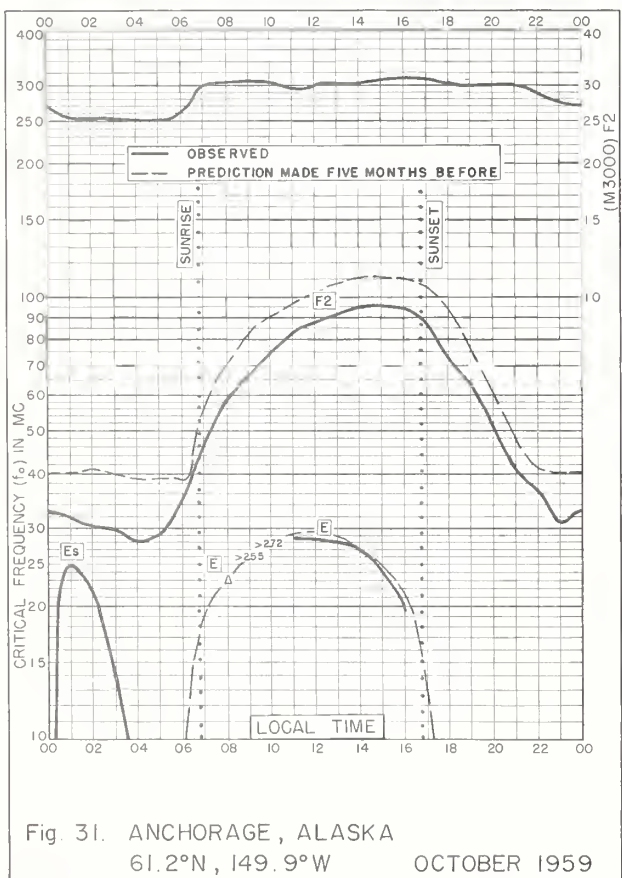
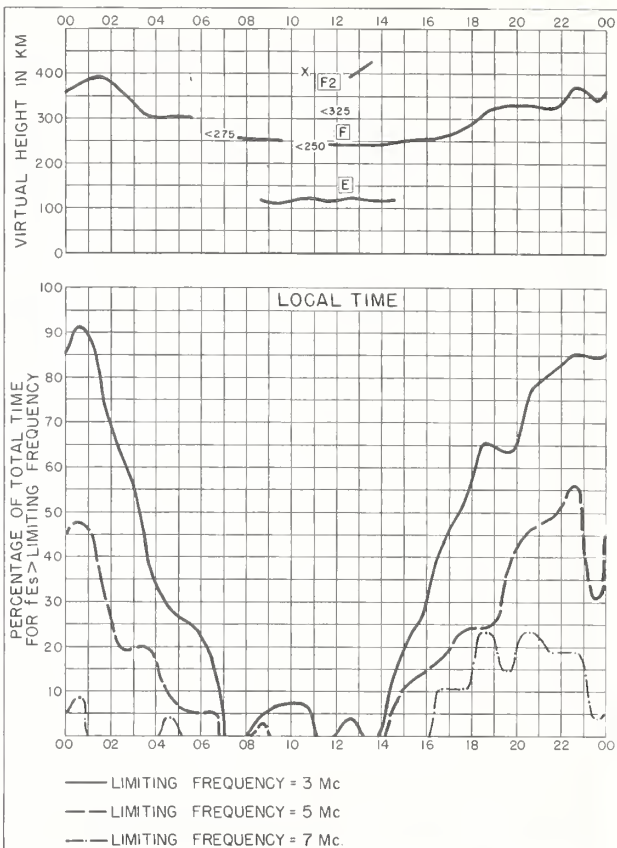
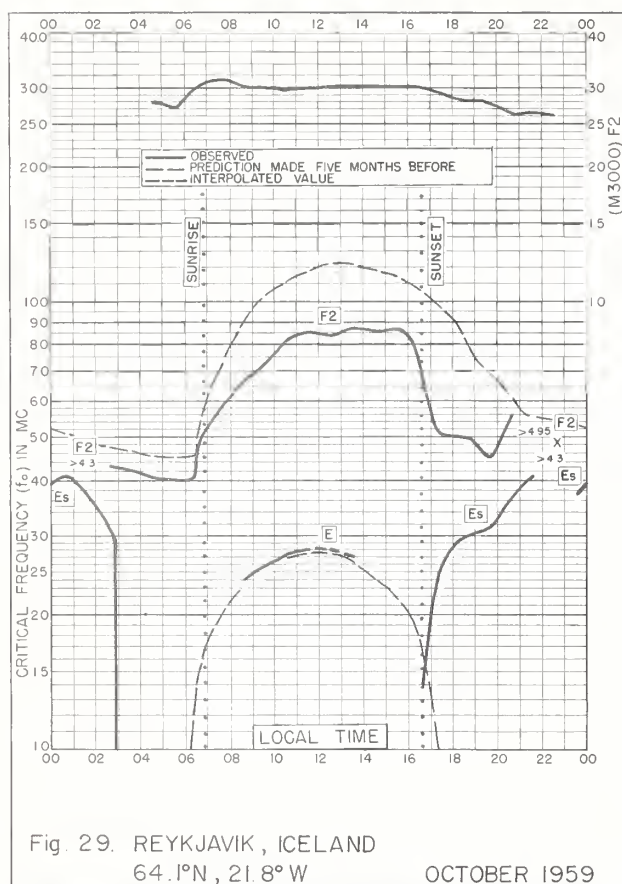


Fig. 28. FAIRBANKS, ALASKA

OCTOBER 1959



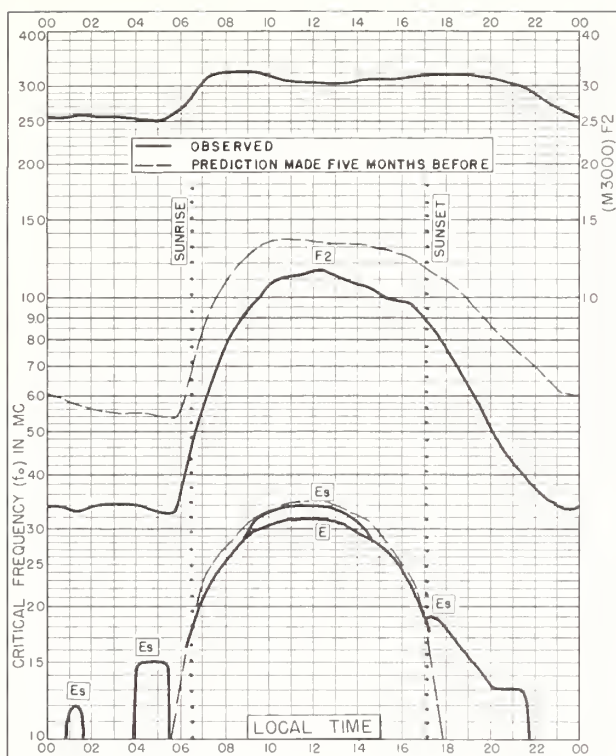


Fig. 33. ADAK, ALASKA
51.9°N, 176.6°W

OCTOBER 1959

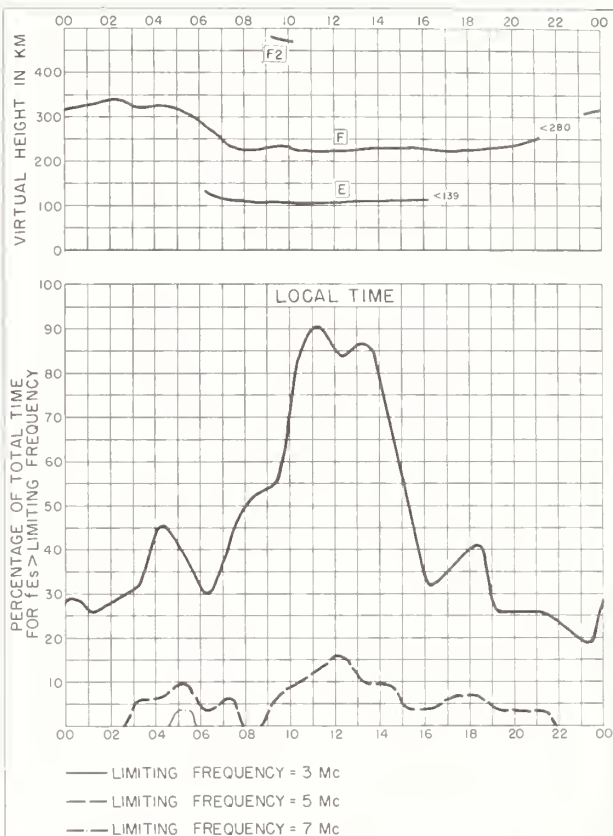


Fig. 34. ADAK, ALASKA

OCTOBER 1959

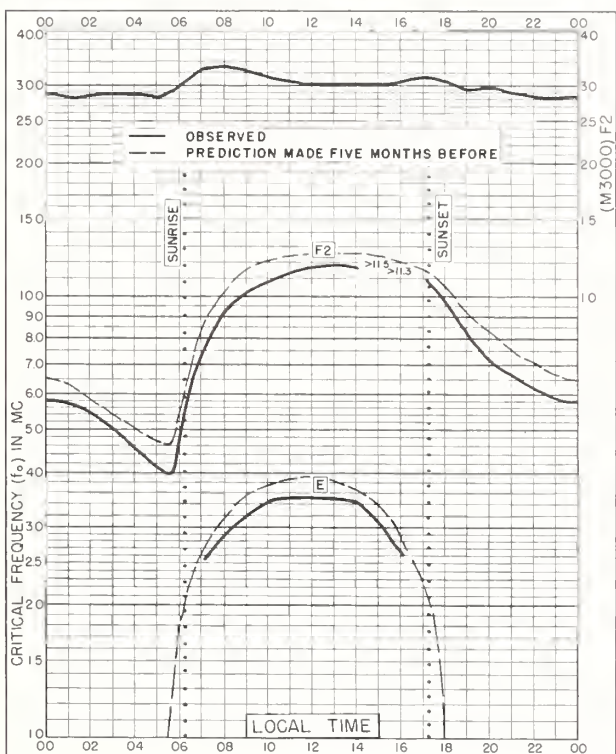


Fig. 35. FT. MONMOUTH, NEW JERSEY
40.4°N, 74.1°W

OCTOBER 1959

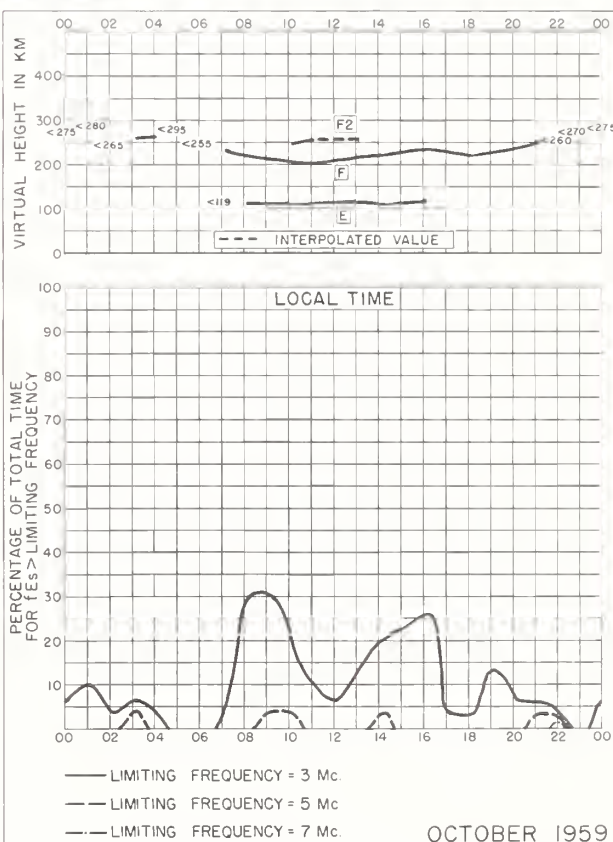


Fig. 36. FT. MONMOUTH, NEW JERSEY

OCTOBER 1959

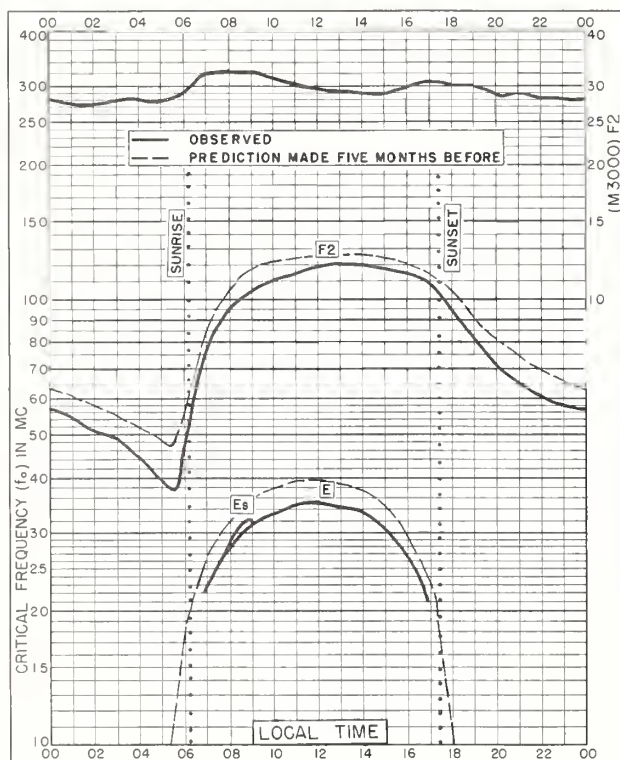


Fig. 37. WASHINGTON, D. C.
38.7°N, 77.1°W

OCTOBER 1959

NBS 503

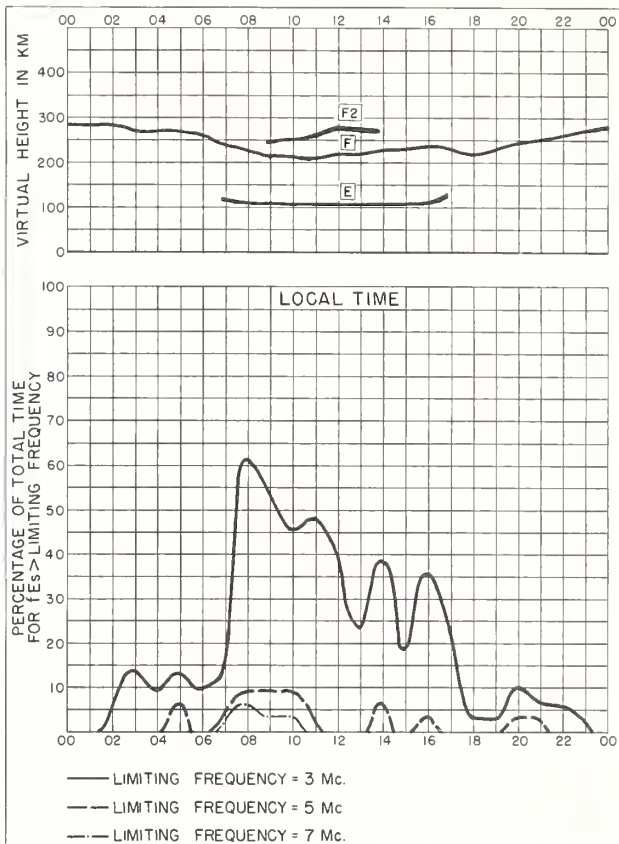


Fig. 38. WASHINGTON, D. C.

OCTOBER 1959

Cumulative Percentage - Boulder, Colo.

NBS 490

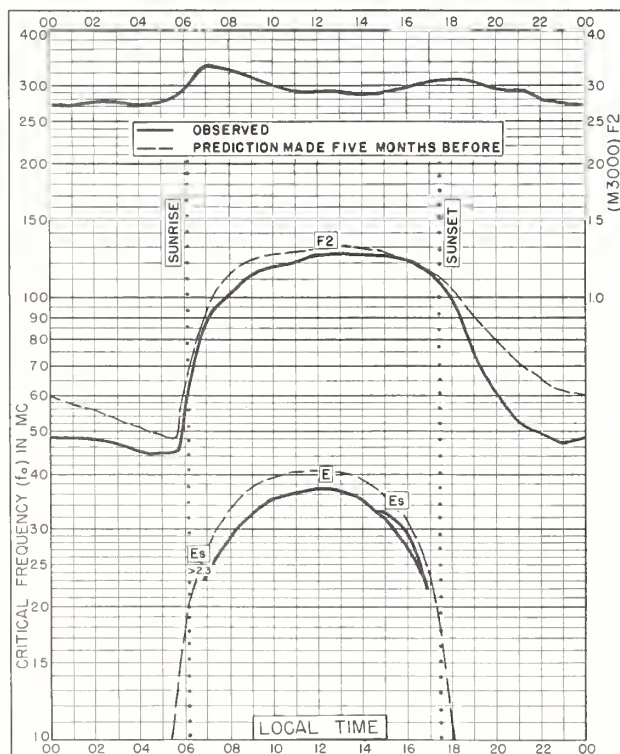


Fig. 39. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W

OCTOBER 1959

NBS 503

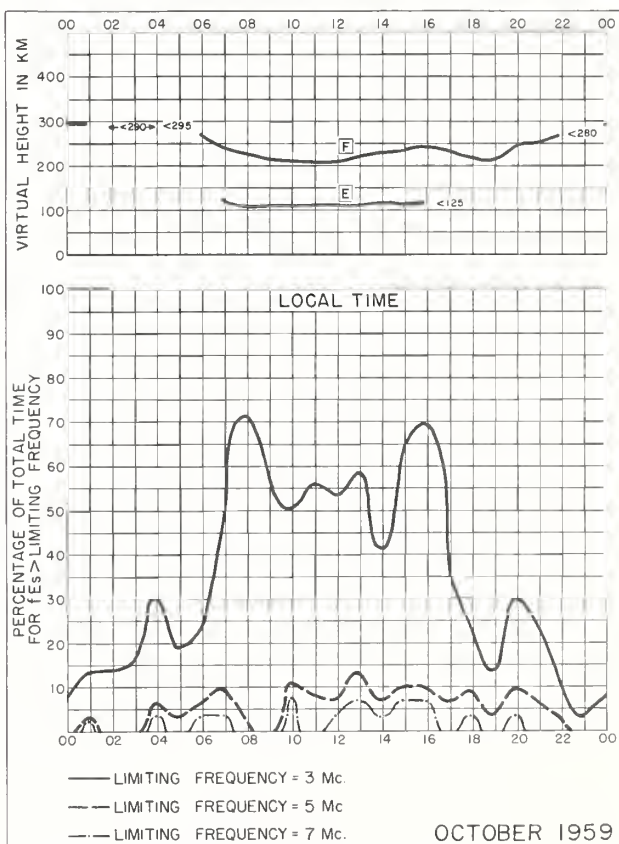


Fig. 40. WHITE SANDS, NEW MEXICO

OCTOBER 1959

Cumulative Percentage - Boulder, Colo.

NBS 490

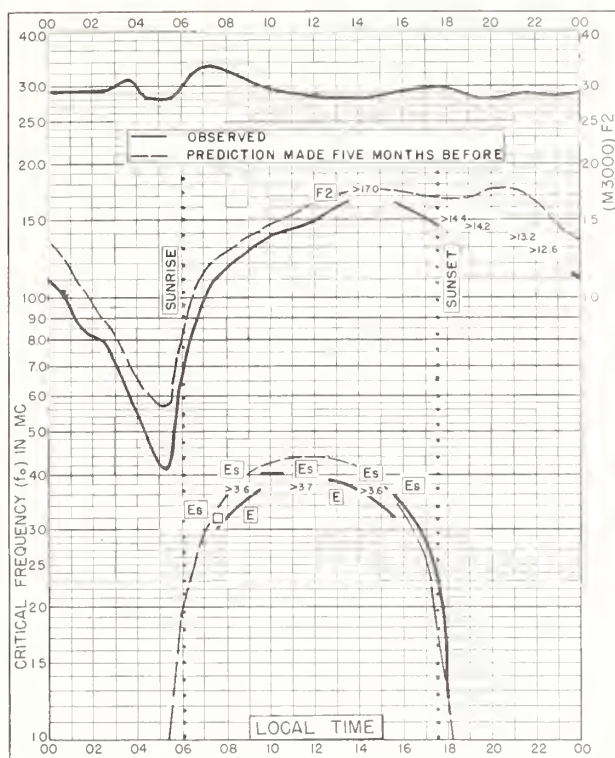
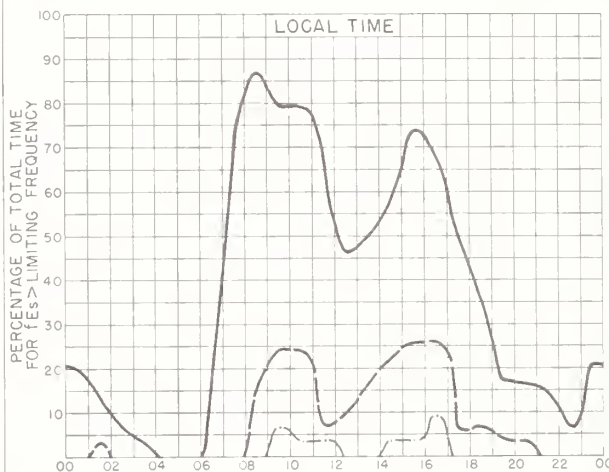
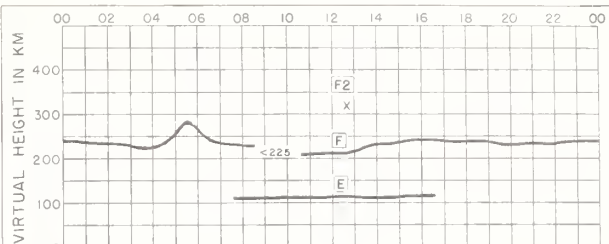


Fig. 41. OKINAWA I.
26.3°N, 127.8°E

OCTOBER 1959



— LIMITING FREQUENCY = 3 Mc
 - - - LIMITING FREQUENCY = 5 Mc
 - · - · - LIMITING FREQUENCY = 7 Mc

Fig. 42. OKINAWA I.

OCTOBER 1959

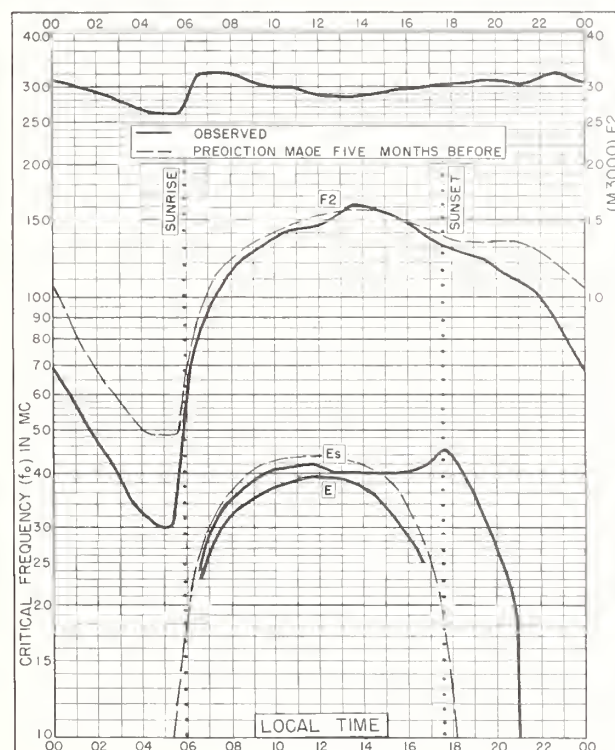
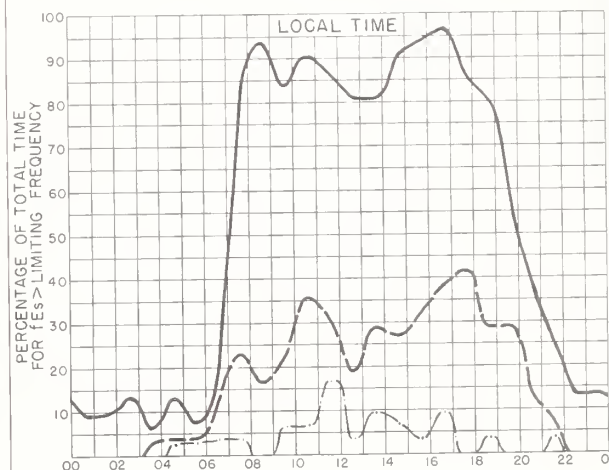
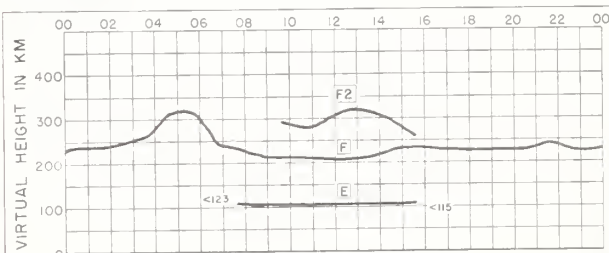


Fig. 43. MAUI, HAWAII
20.8°N, 156.5°W

OCTOBER 1959



— LIMITING FREQUENCY = 3 Mc
 - - - LIMITING FREQUENCY = 5 Mc
 - · - · - LIMITING FREQUENCY = 7 Mc

Fig. 44. MAUI, HAWAII

OCTOBER 1959

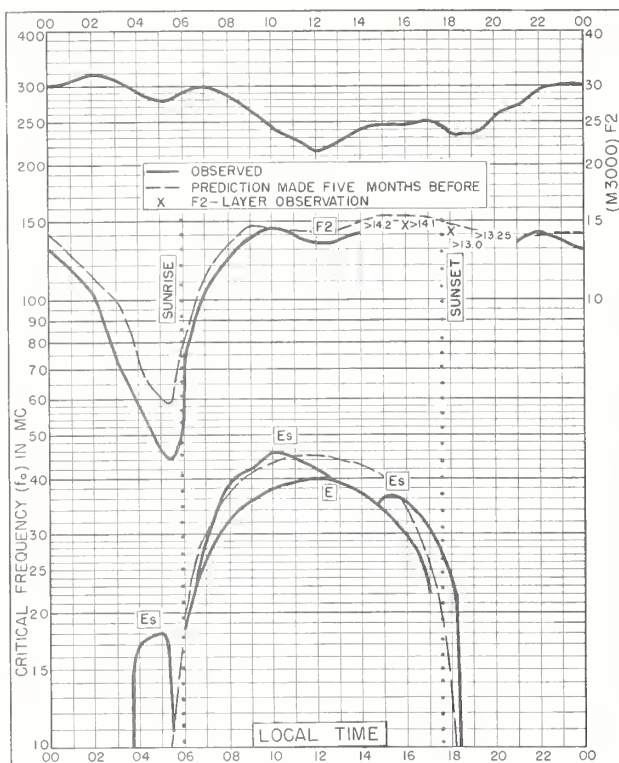


Fig. 45. BAGUIO, P. I.
16.4°N, 120.6°E

OCTOBER 1959

NBS 503

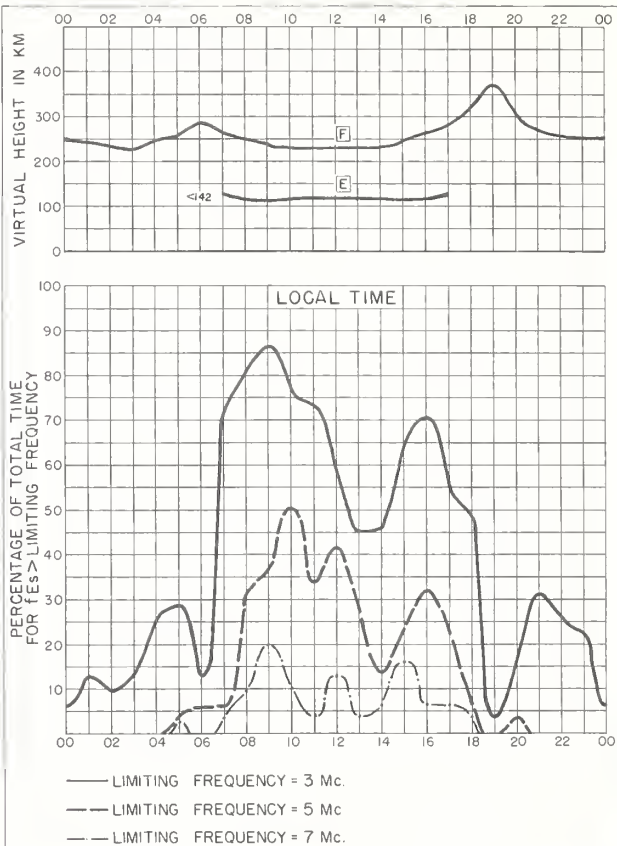


Fig. 46. BAGUIO, P. I.

OCTOBER 1959

NBS 490

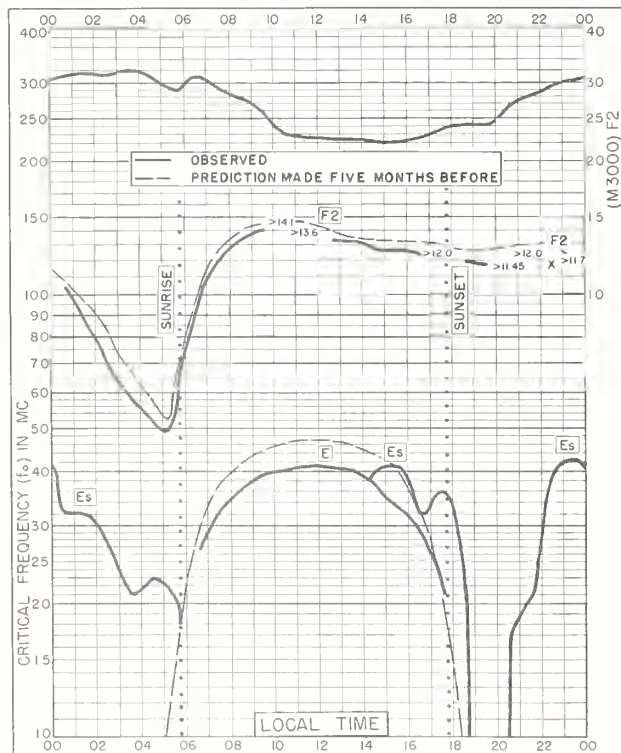


Fig. 47. TALARA, PERU
4.6°S, 81.3°W

OCTOBER 1959

NBS 503

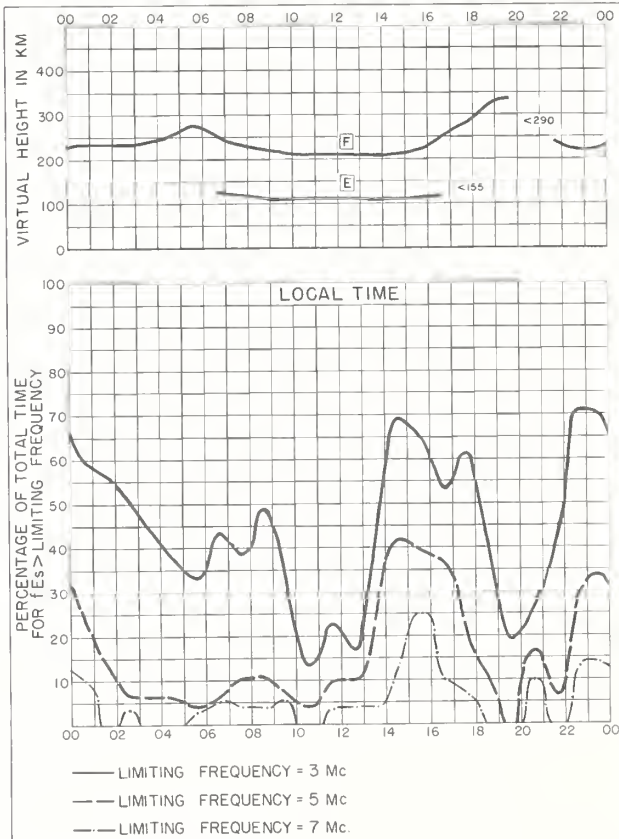


Fig. 48. TALARA, PERU

OCTOBER 1959

NBS 490

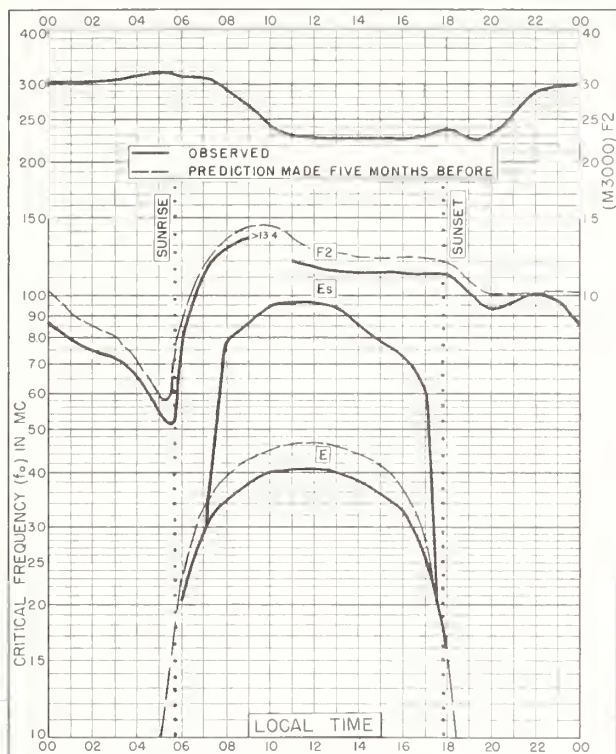


Fig. 49. HUANCAYO, PERU
12.0°S, 75.3°W

OCTOBER 1959

NBS 503

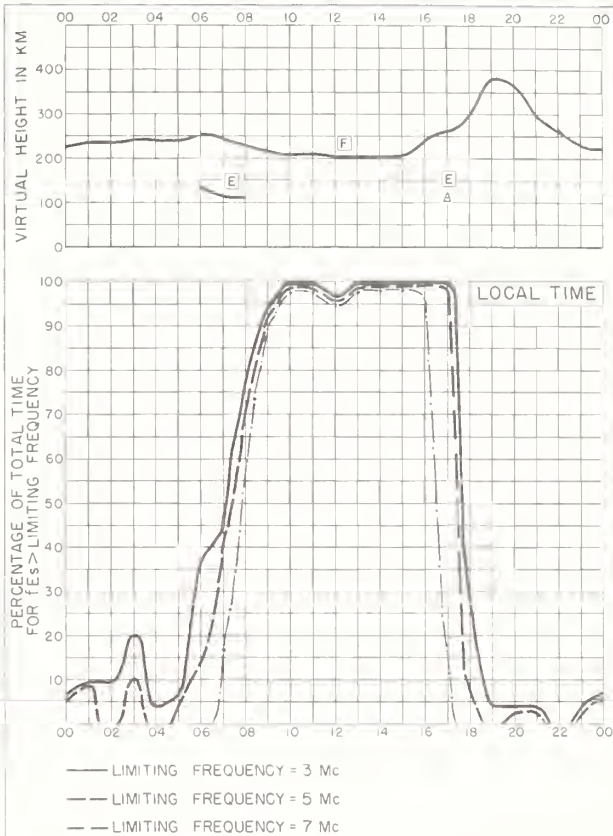


Fig 50. HUANCAYO, PERU

OCTOBER 1959

NBS 490

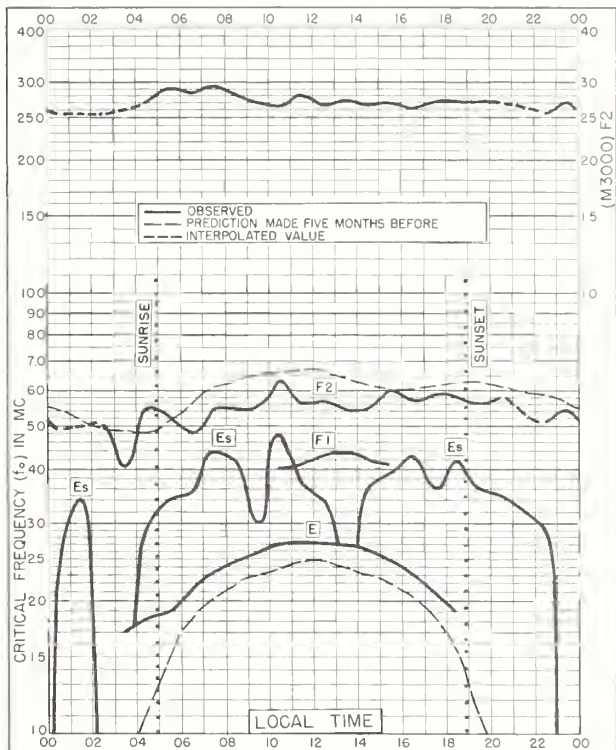


Fig. 51. THULE, GREENLAND
76.6°N, 68.7°W

SEPTEMBER 1959

NBS 503

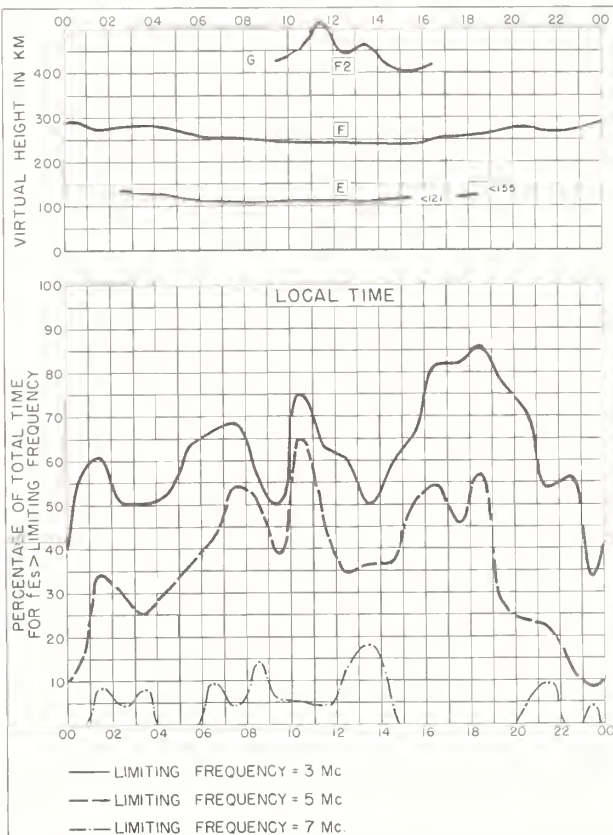


Fig. 52. THULE, GREENLAND SEPTEMBER 1959

NBS 490

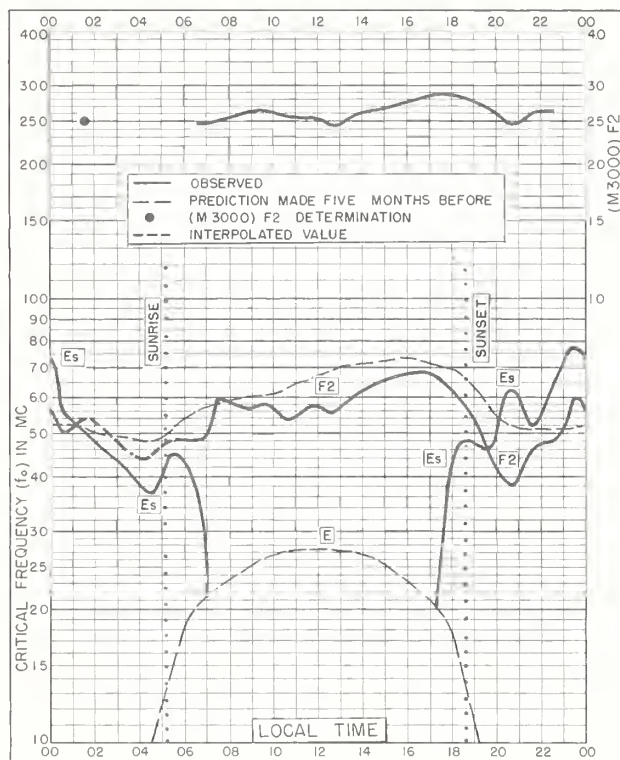


Fig. 53. POINT BARROW, ALASKA
71.3°N, 156.8°W SEPTEMBER 1959

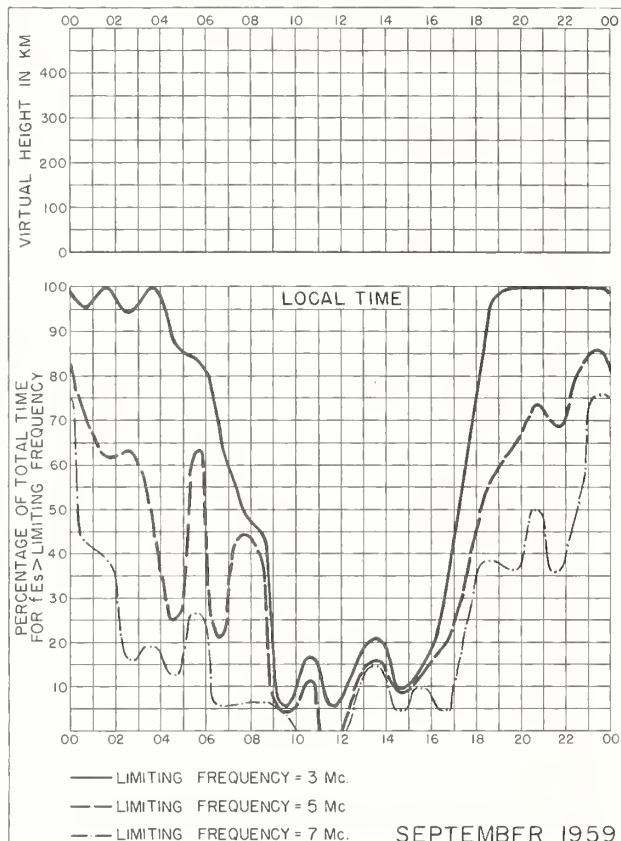


Fig. 54. POINT BARROW, ALASKA SEPTEMBER 1959

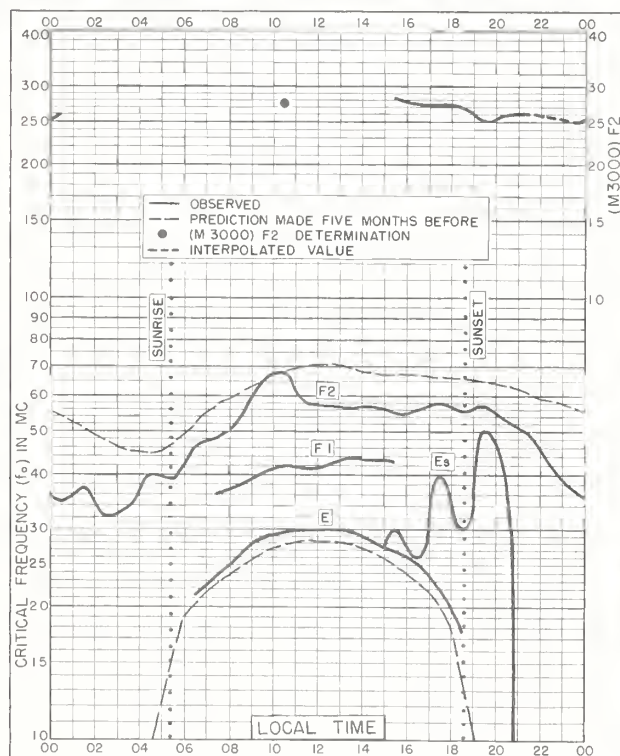


Fig. 55. GODHAVN, GREENLAND
69.3°N, 53.5°W SEPTEMBER 1959

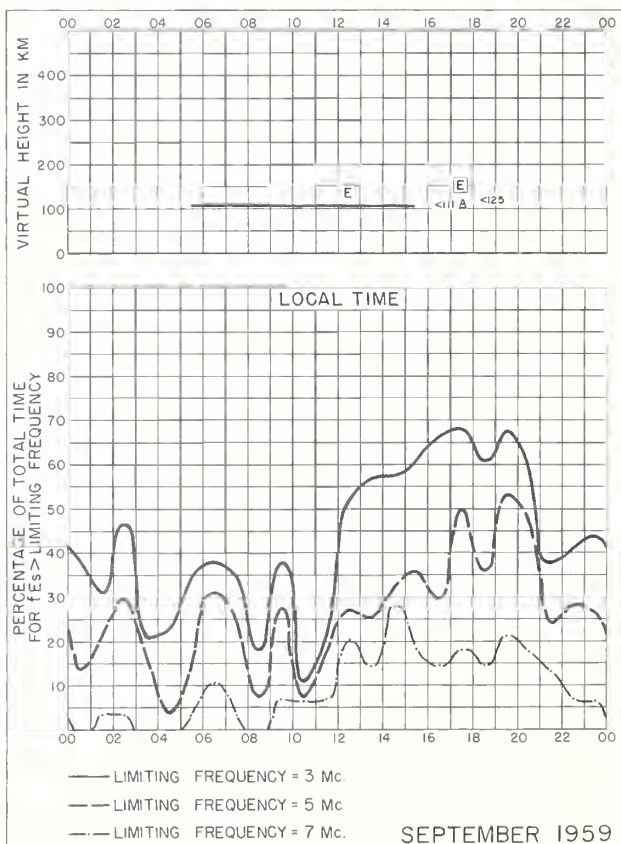


Fig. 56. GODHAVN, GREENLAND SEPTEMBER 1959

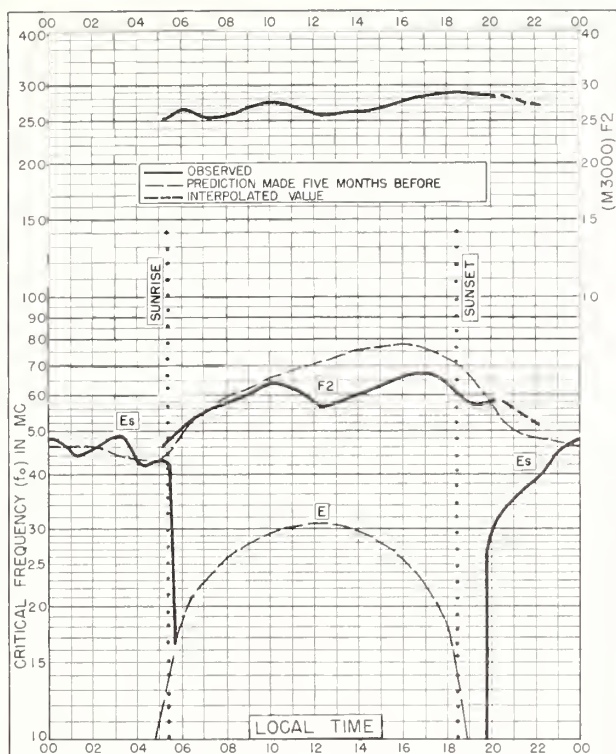


Fig. 57. FAIRBANKS, ALASKA
64.9°N, 147.8°W SEPTEMBER 1959

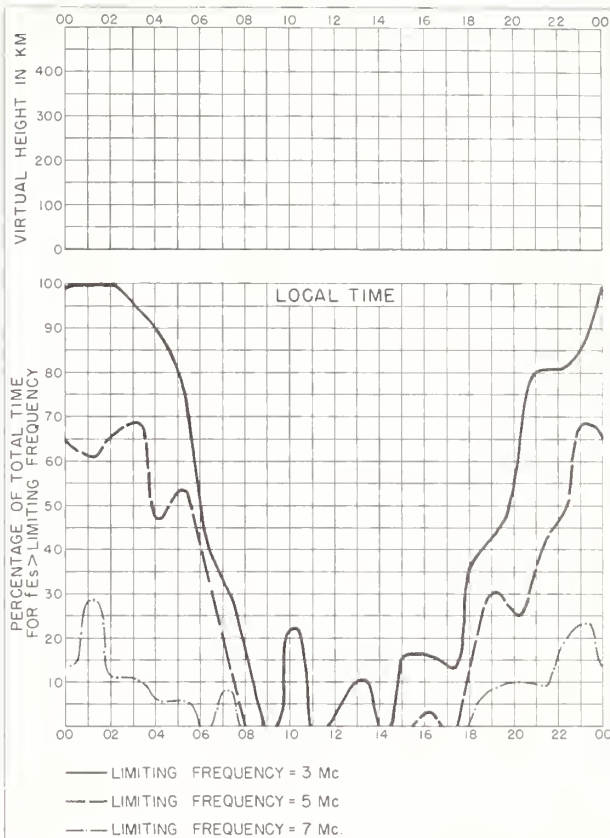


Fig. 58. FAIRBANKS, ALASKA SEPTEMBER 1959

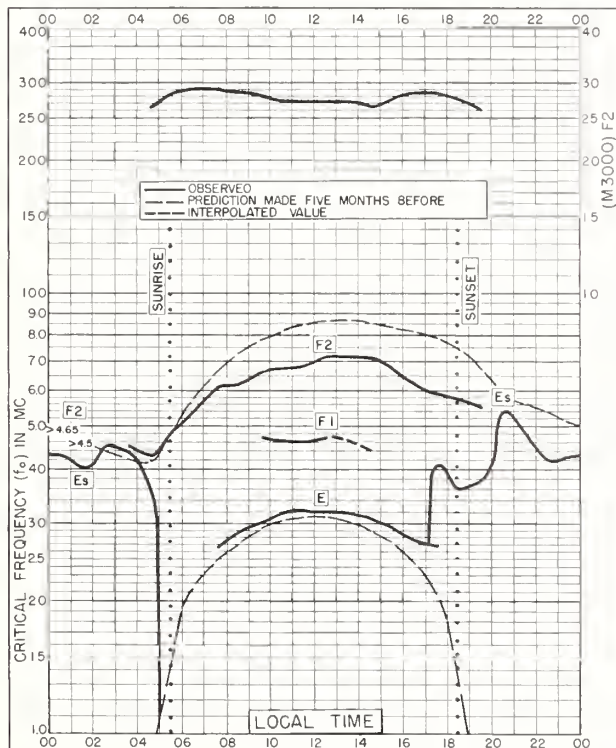


Fig. 59. REYKJAVIK, ICELAND
64.1°N, 21.8°W SEPTEMBER 1959

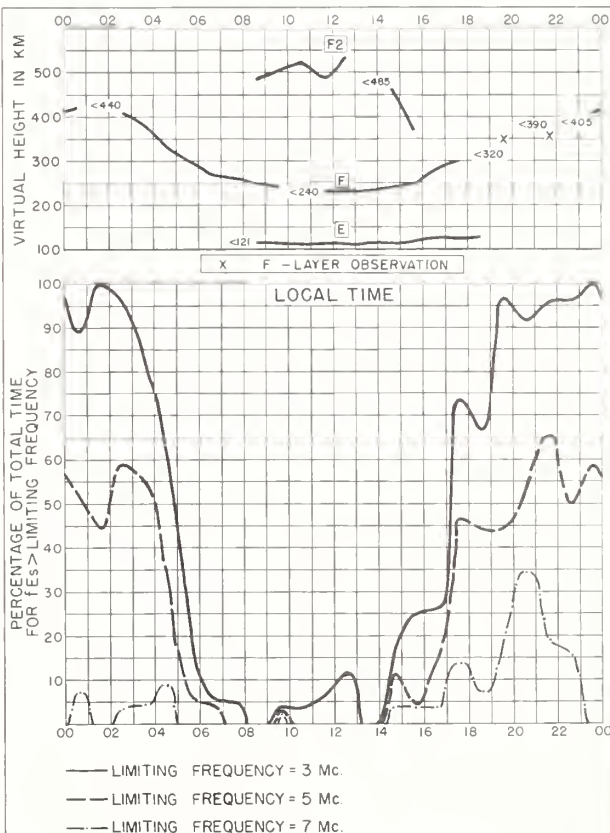


Fig. 60. REYKJAVIK, ICELAND SEPTEMBER 1959

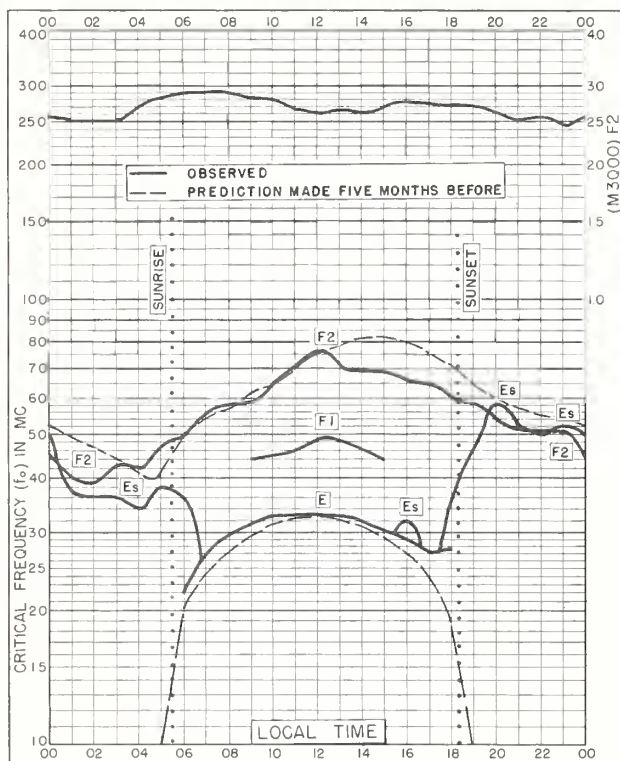


Fig. 61. NARSARSSUAQ, GREENLAND
61.2°N, 45.4°W SEPTEMBER 1959

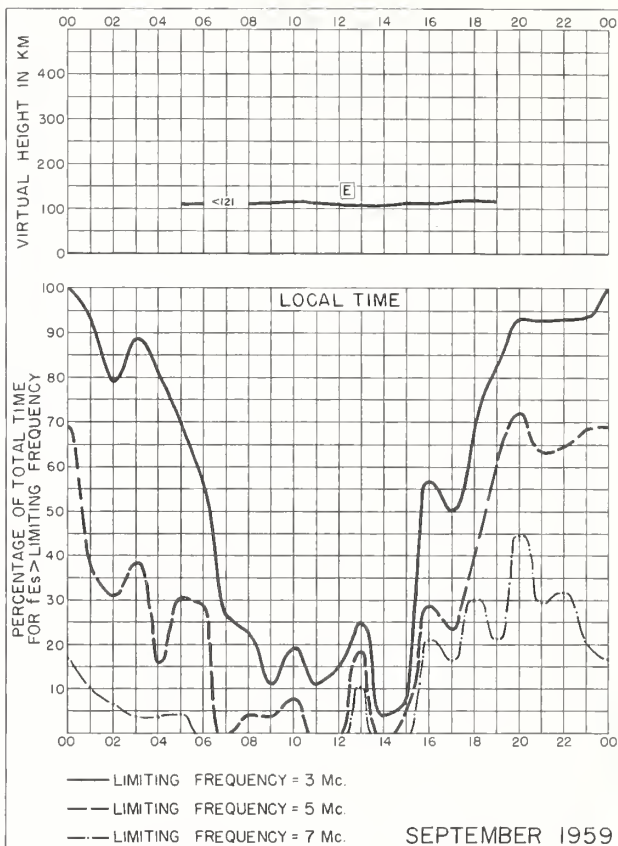


Fig. 62. NARSARSSUAQ, GREENLAND

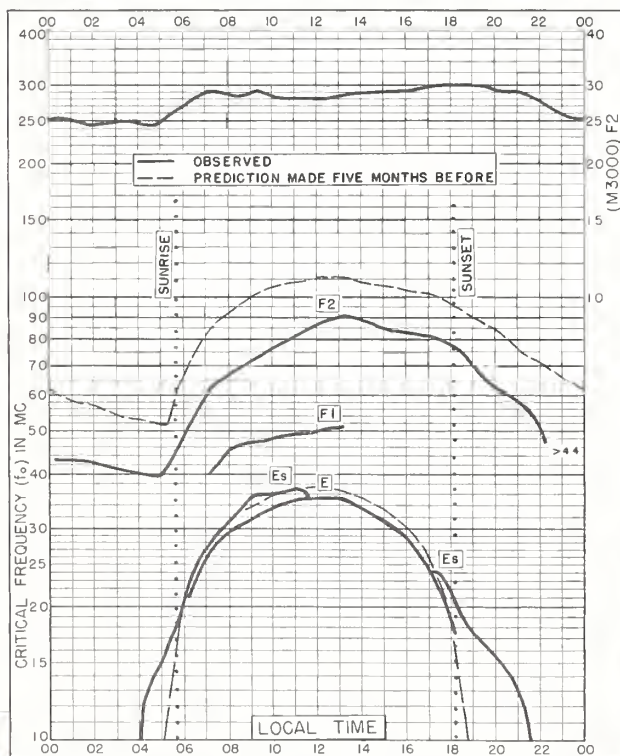


Fig. 63. ADAK, ALASKA
51.9°N, 176.6°W SEPTEMBER 1959

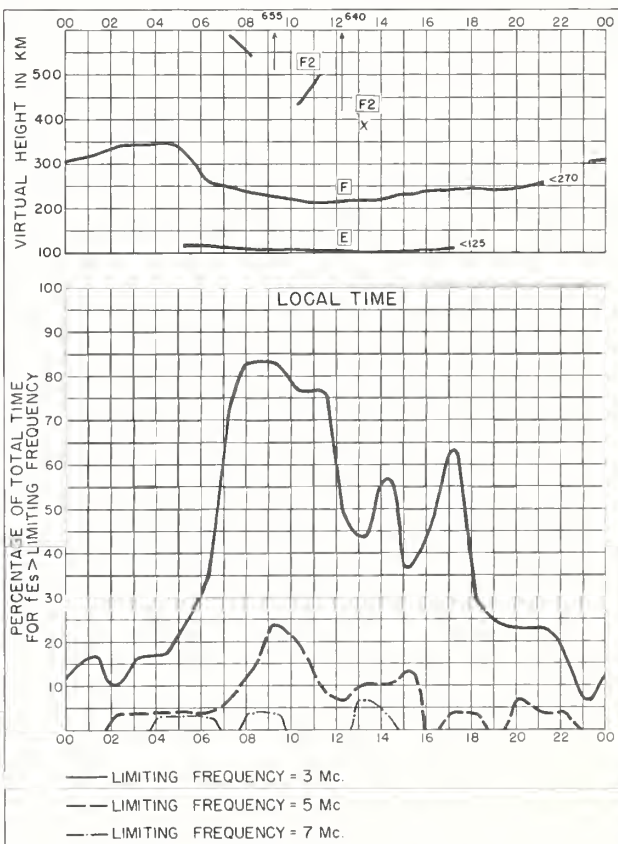


Fig. 64. ADAK, ALASKA SEPTEMBER 1959

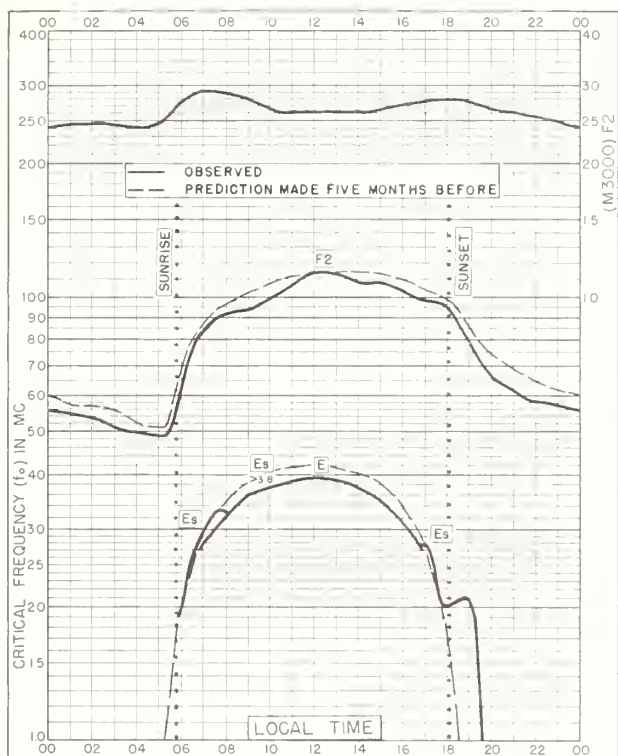


Fig. 65. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W SEPTEMBER 1959

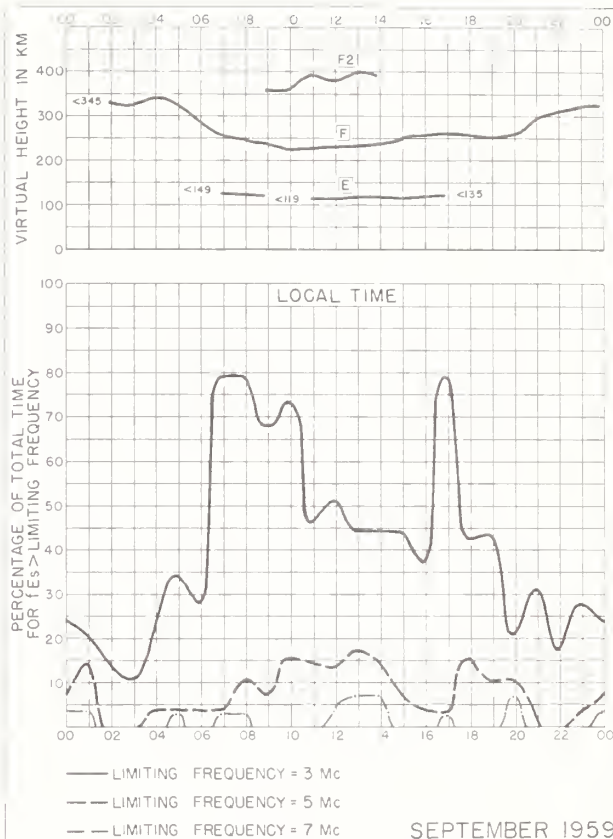


Fig. 66. WHITE SANDS, NEW MEXICO SEPTEMBER 1959

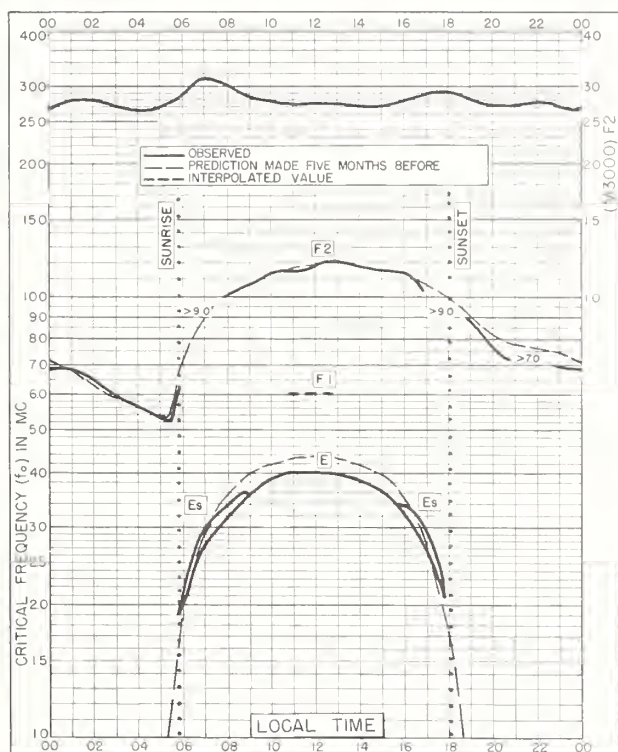


Fig. 67. GRAND BAHAMA I.
26.6°N, 78.2°W SEPTEMBER 1959

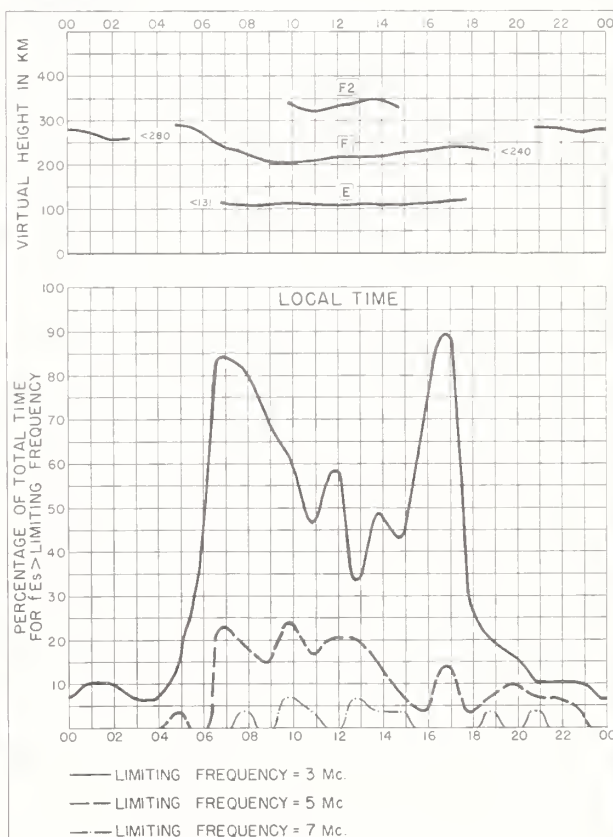


Fig. 68. GRAND BAHAMA I. SEPTEMBER 1959

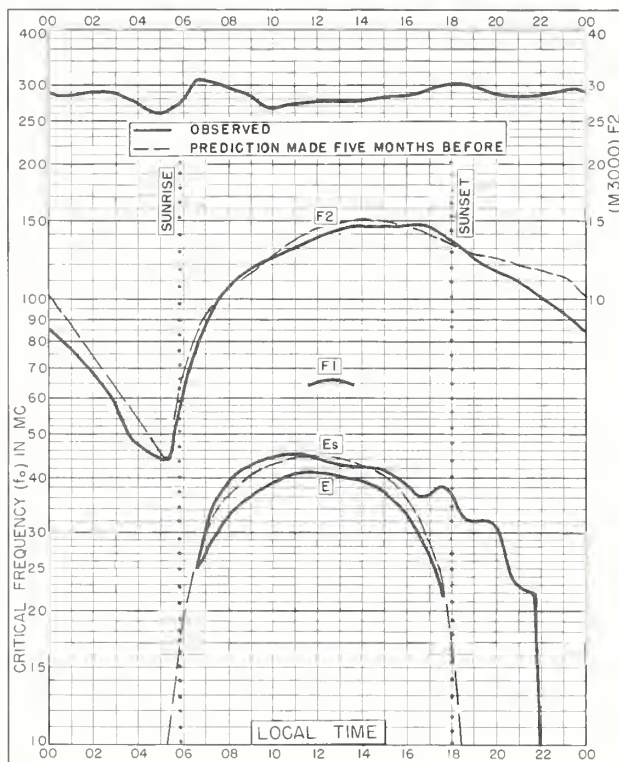


Fig. 69. MAUI, HAWAII
20.8°N, 156.5°W SEPTEMBER 1959

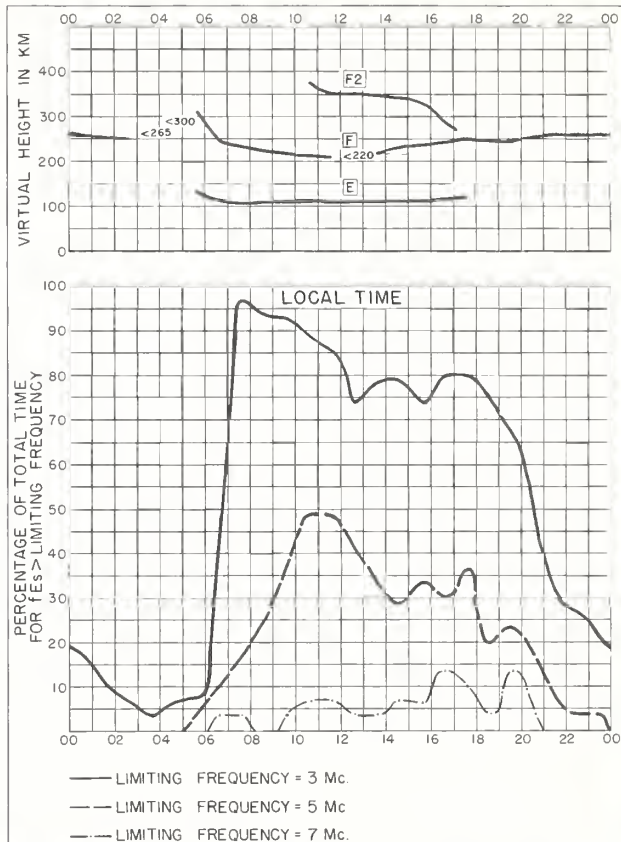


Fig. 70. MAUI, HAWAII SEPTEMBER 1959

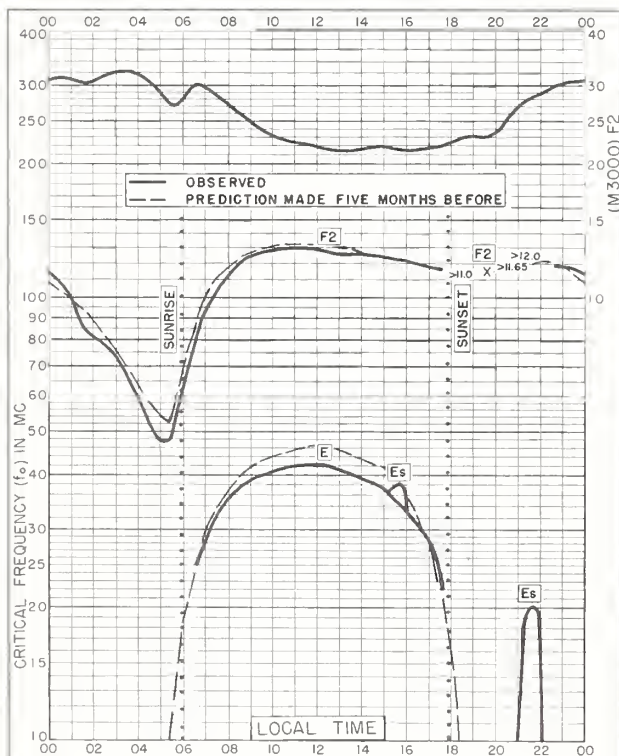


Fig. 71. TALARA, PERU
4.6°S, 81.3°W SEPTEMBER 1959

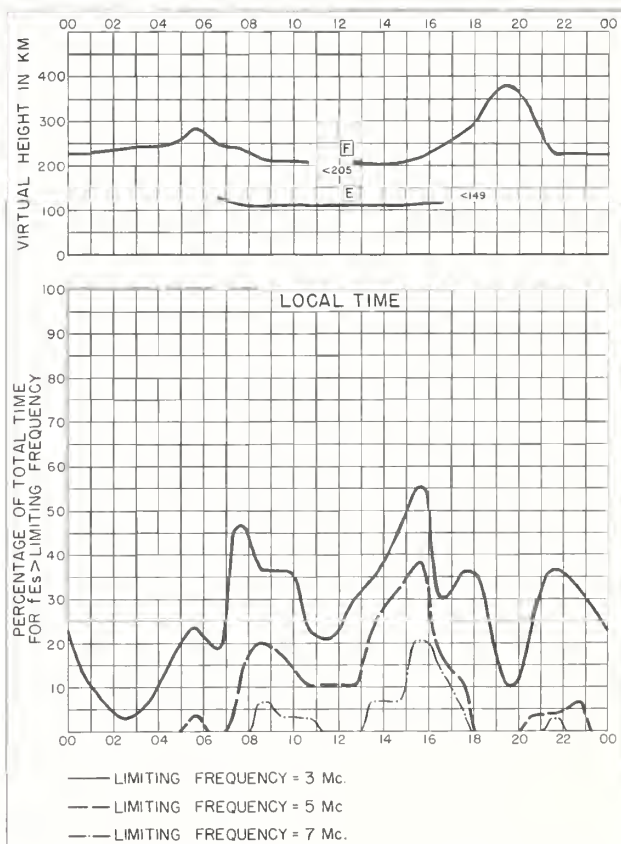


Fig. 72. TALARA, PERU SEPTEMBER 1959

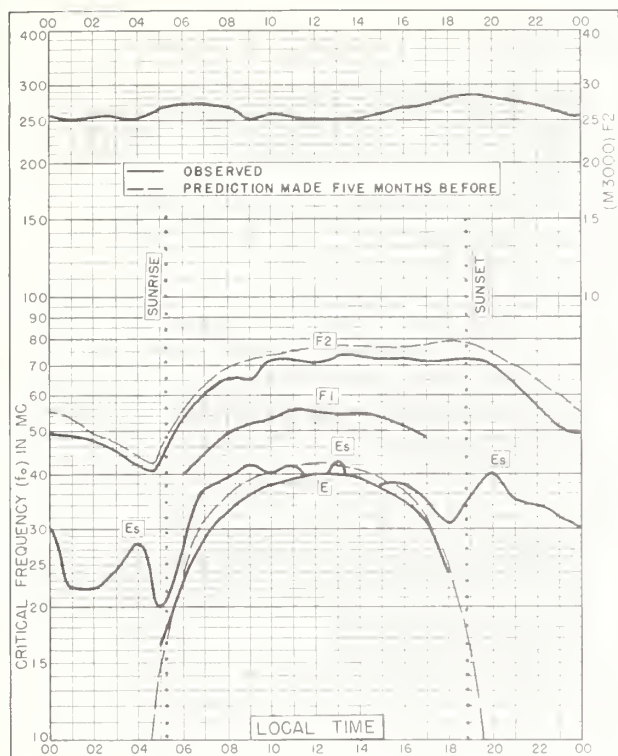


Fig. 73. BOULDER, COLORADO
40.0°N, 105.3°W

AUGUST 1959

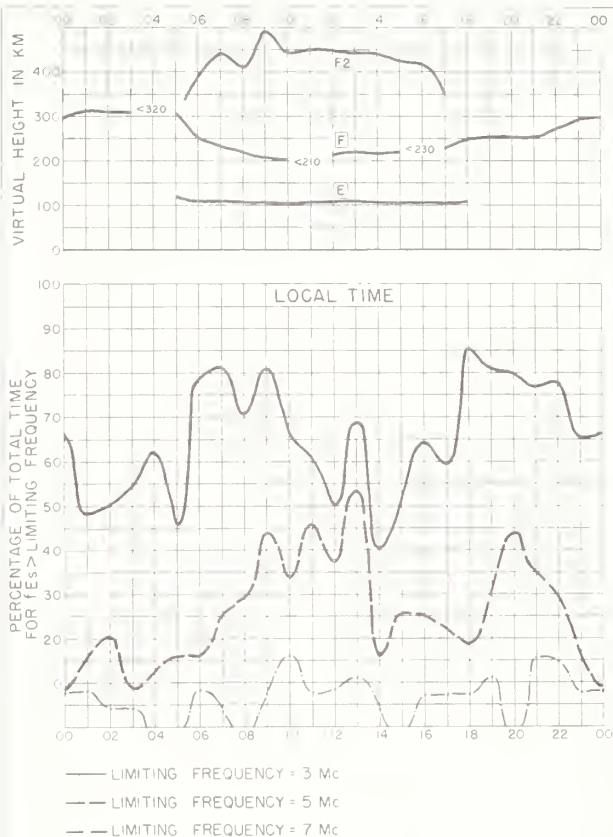


Fig. 74. BOULDER, COLORADO

AUGUST 1959

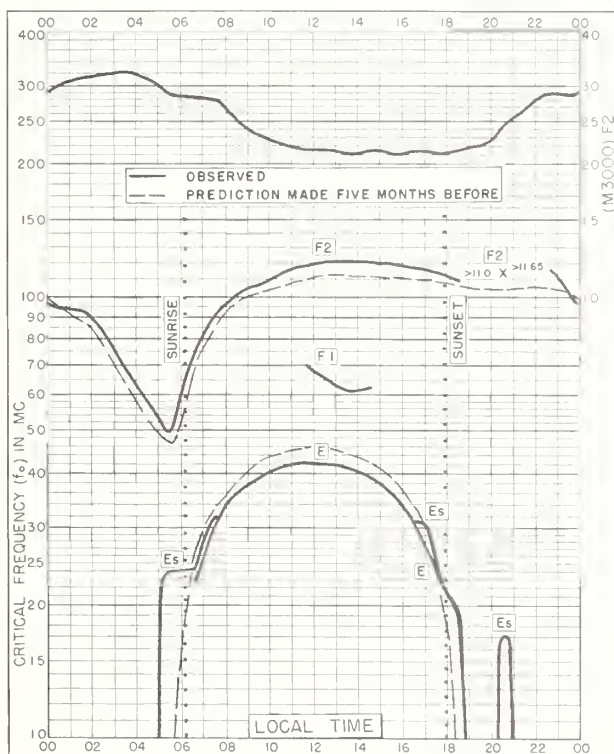


Fig. 75. TALARA, PERU
4.6°S, 81.3°W

AUGUST 1959

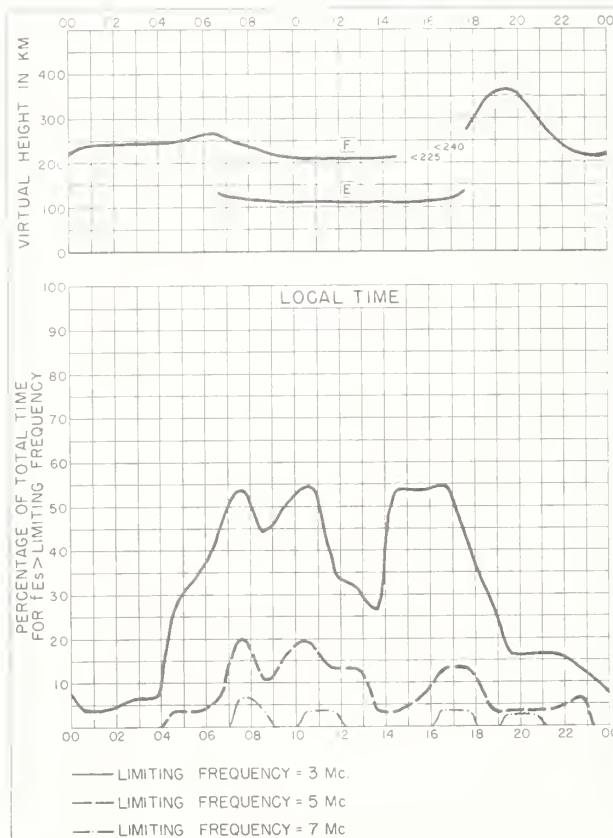


Fig. 76. TALARA, PERU

AUGUST 1959

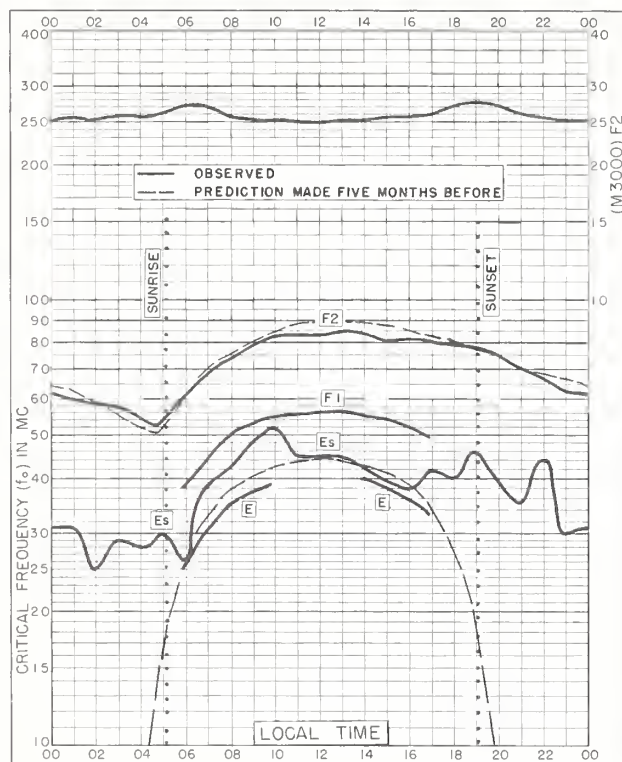


Fig. 77. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W
JULY 1959

NBS 503

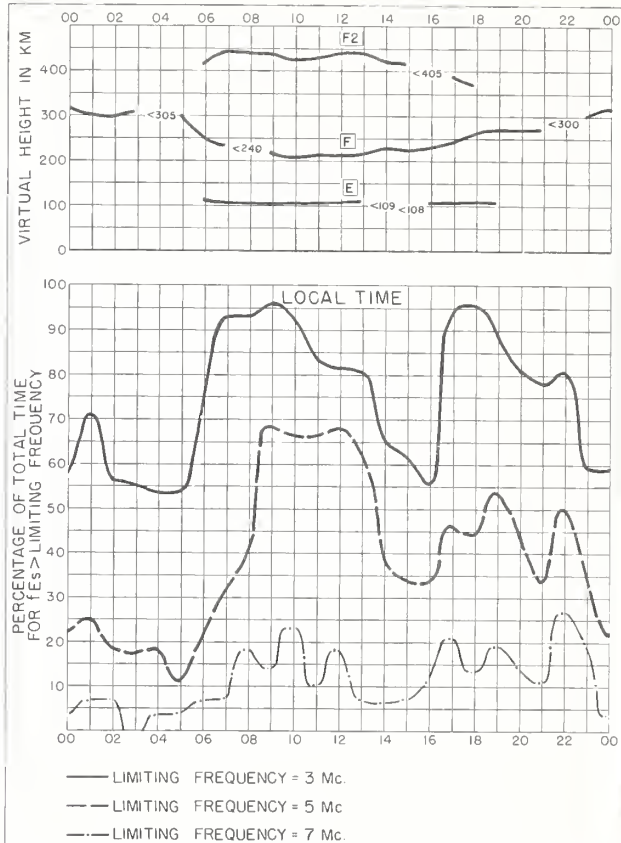


Fig. 78. WHITE SANDS, NEW MEXICO JULY 1959

NBS 490

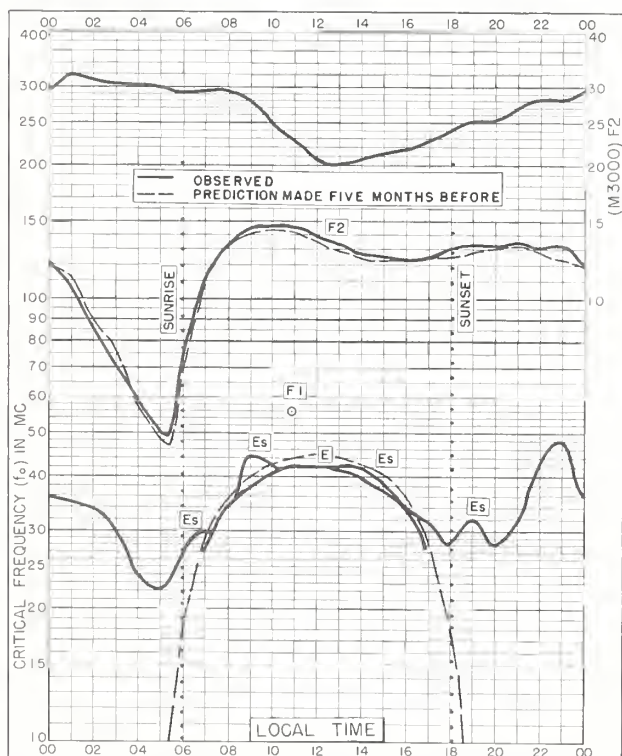


Fig. 79. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E
JUNE 1959

NBS 503

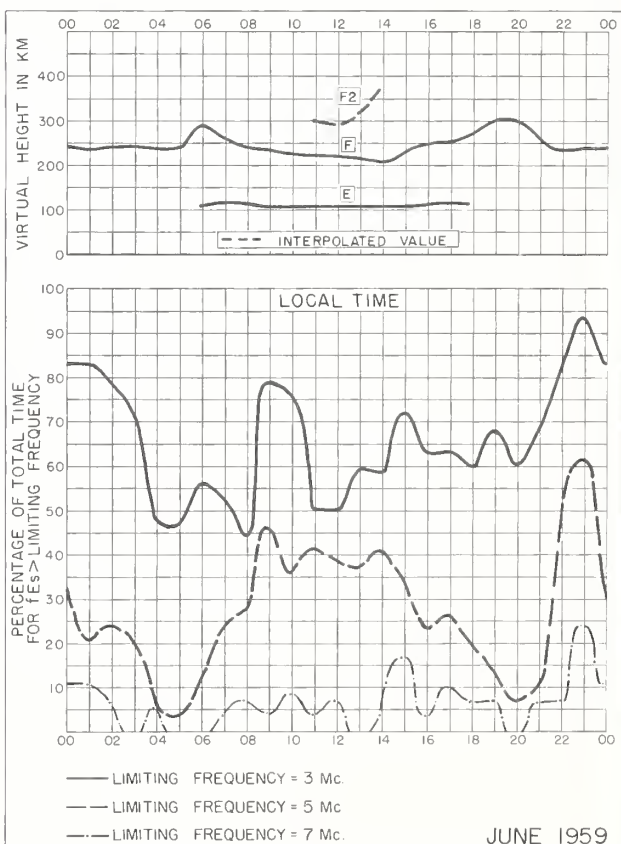


Fig. 80. SINGAPORE, BRITISH MALAYA
JUNE 1959

NBS 490

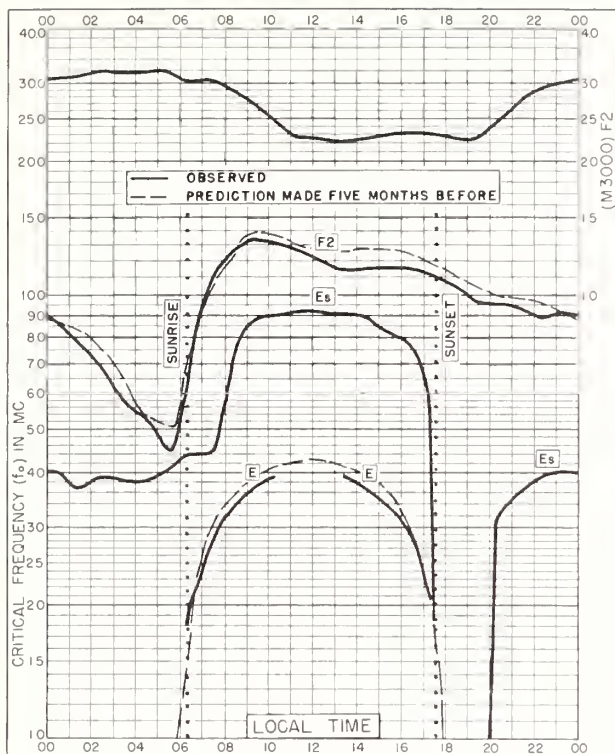


Fig. 81. JULIACA, PERU
15.5°S, 70.2°W

MAY 1959

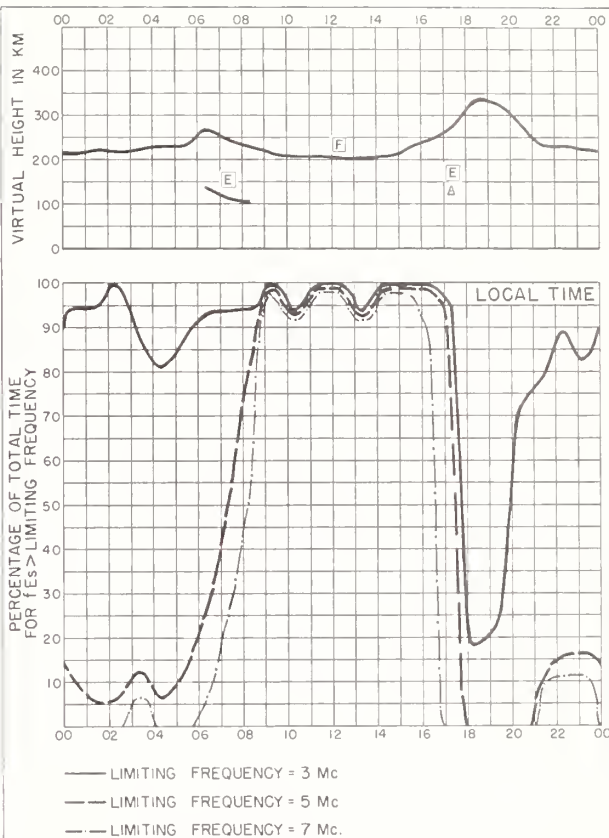


Fig. 82. JULIACA, PERU

MAY 1959

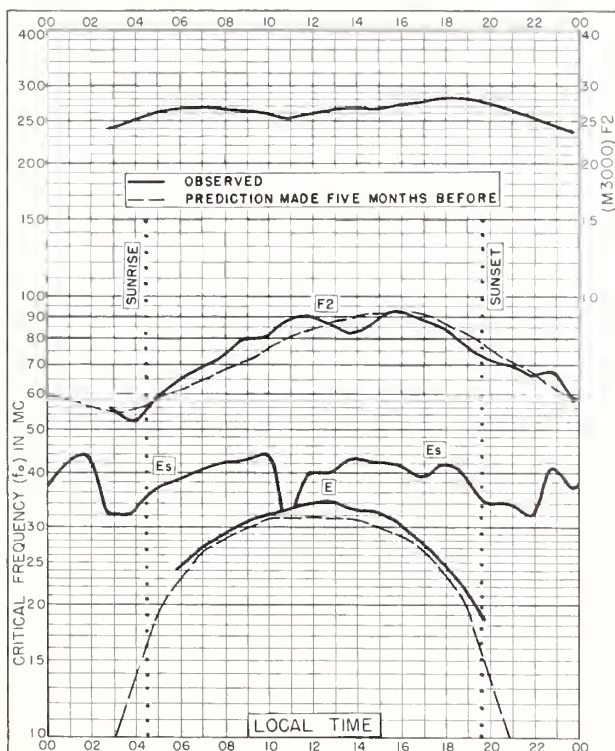


Fig. 83. SODANKYLÄ, FINLAND
67.4°N, 26.6°E

APRIL 1959

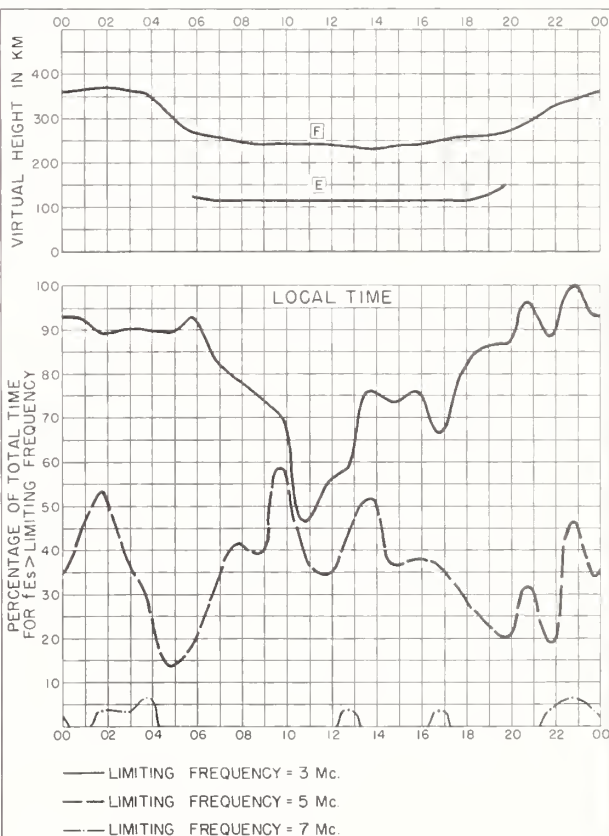


Fig. 84. SODANKYLÄ, FINLAND

APRIL 1959

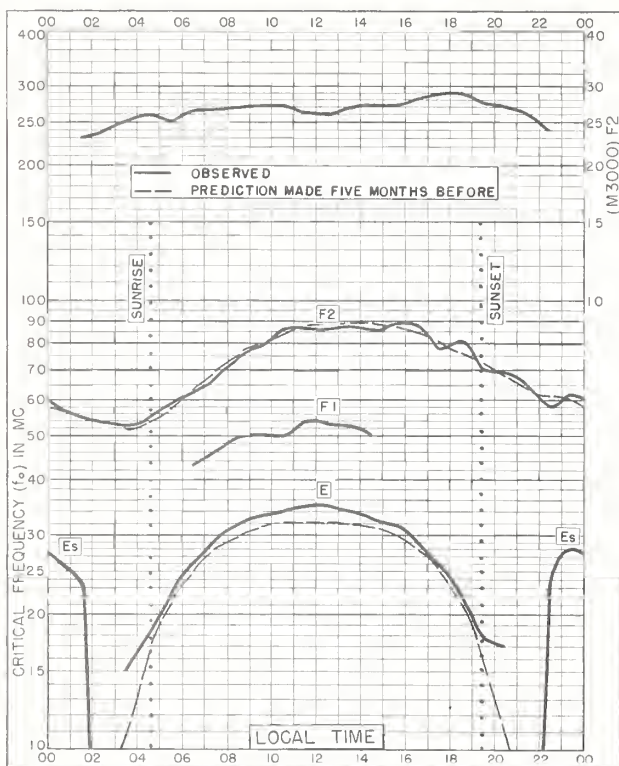


Fig 85. LULEA, SWEDEN
65.6°N, 22.1°E

APRIL 1959

NBS 503

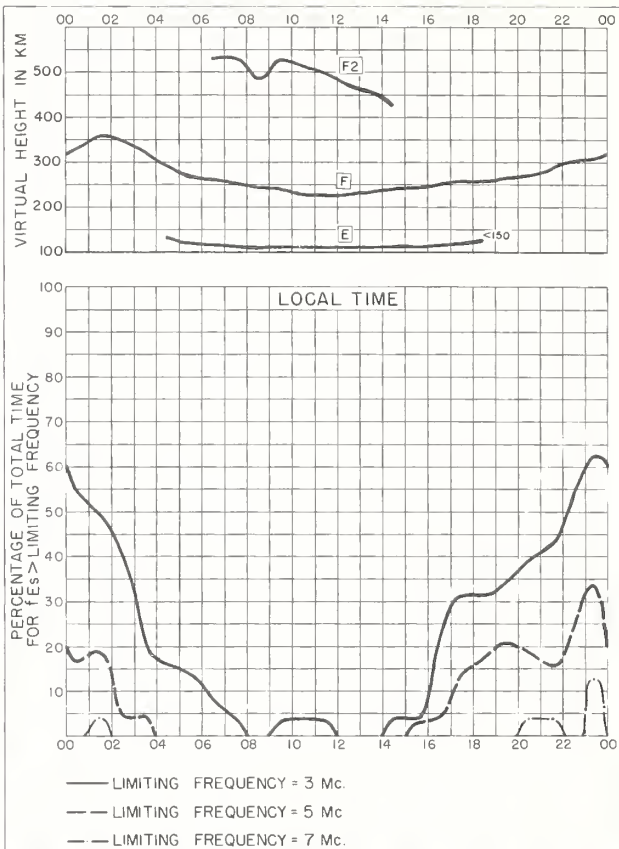


Fig. 86. LULEA, SWEDEN

APRIL 1959

NBS 490

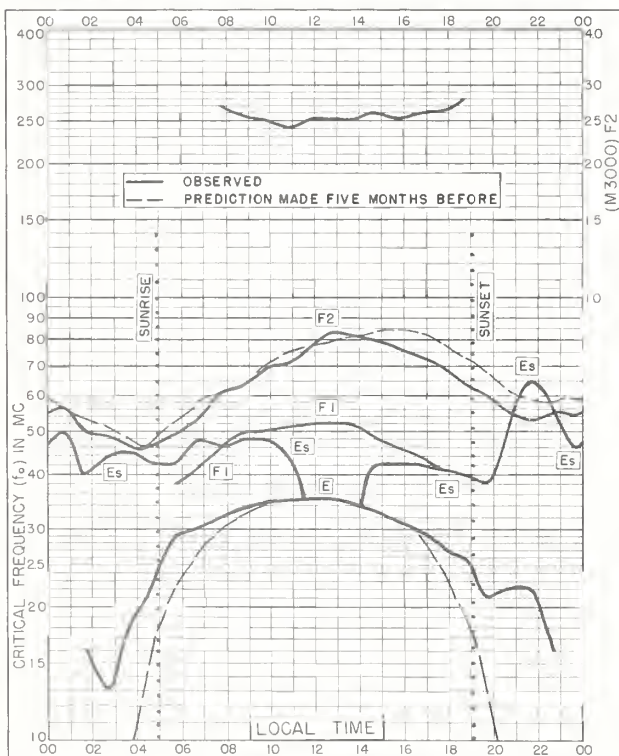


Fig. 87. CHURCHILL, CANADA
58.8°N, 94.2°W

APRIL 1959

NBS 503

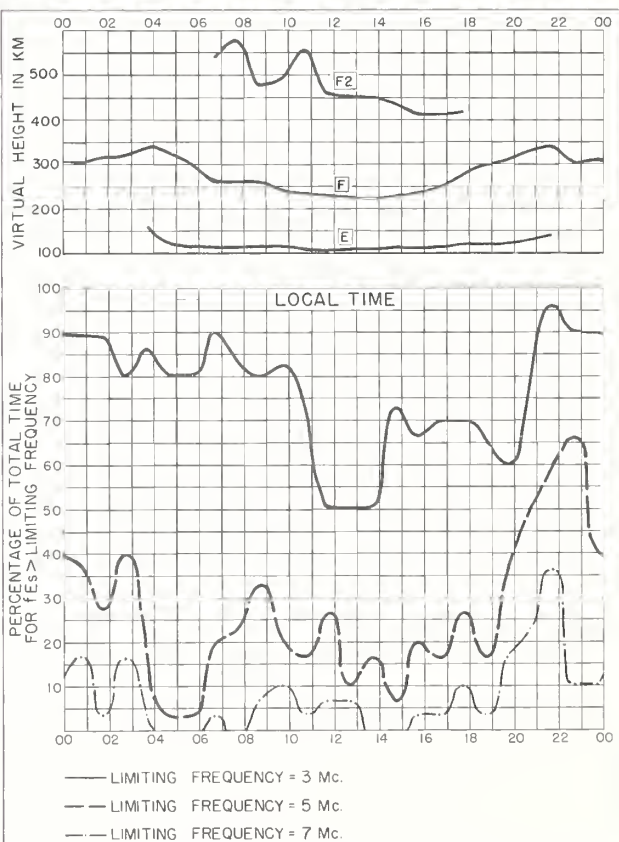


Fig. 88. CHURCHILL, CANADA

APRIL 1959

NBS 490

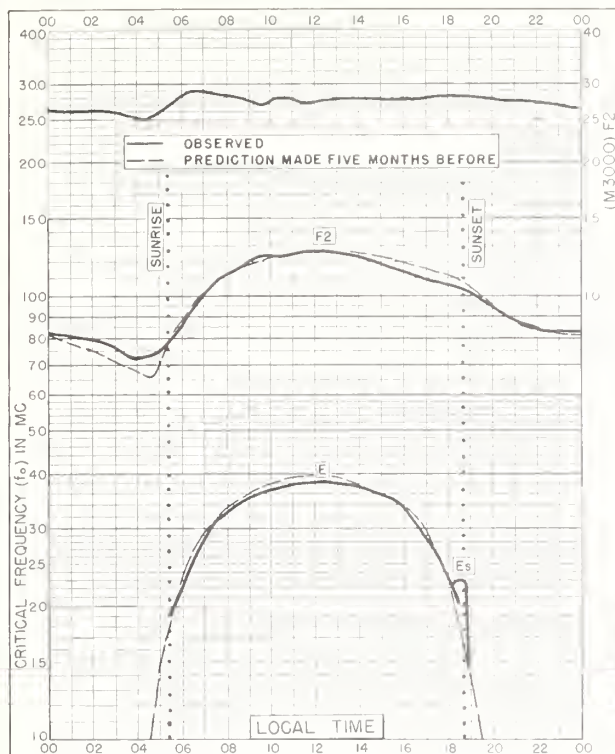


Fig. 89. WAKKANAI, JAPAN
45.4°N, 141.7°E

APRIL 1959

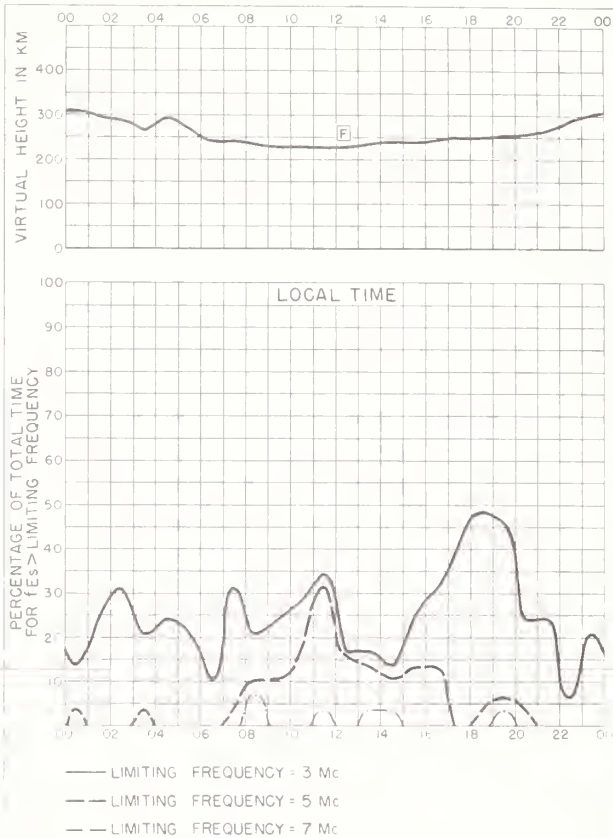


Fig. 90. WAKKANAI, JAPAN

APRIL 1959

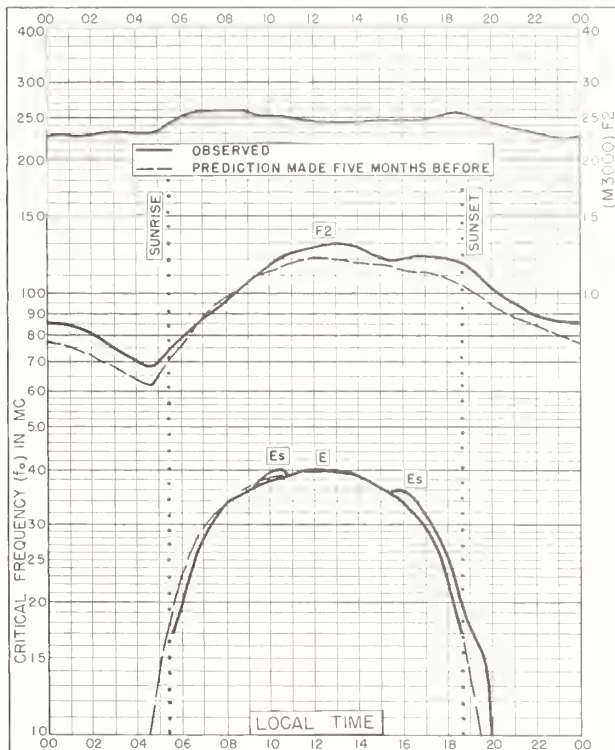


Fig. 91. MONTE CAPELLINO, ITALY
44.6°N, 9.0°E

APRIL 1959

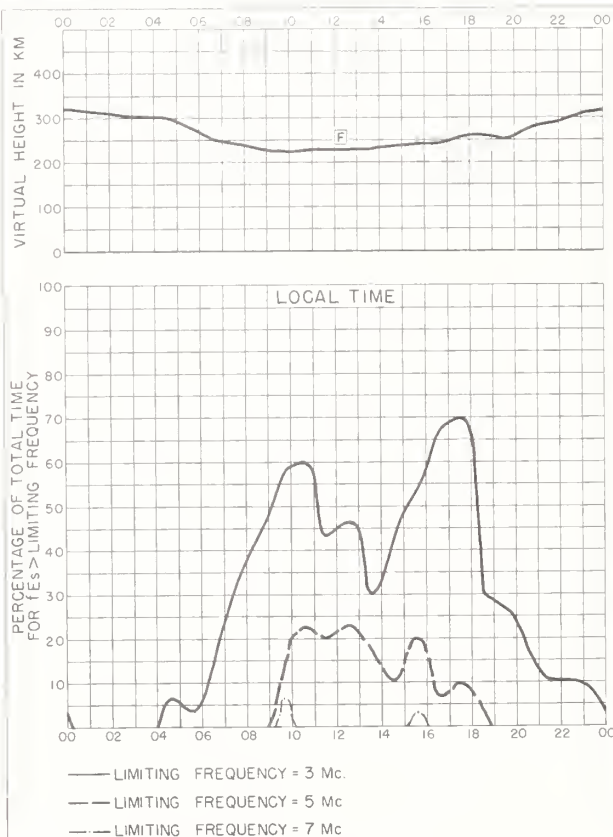


Fig. 92. MONTE CAPELLINO, ITALY

APRIL 1959

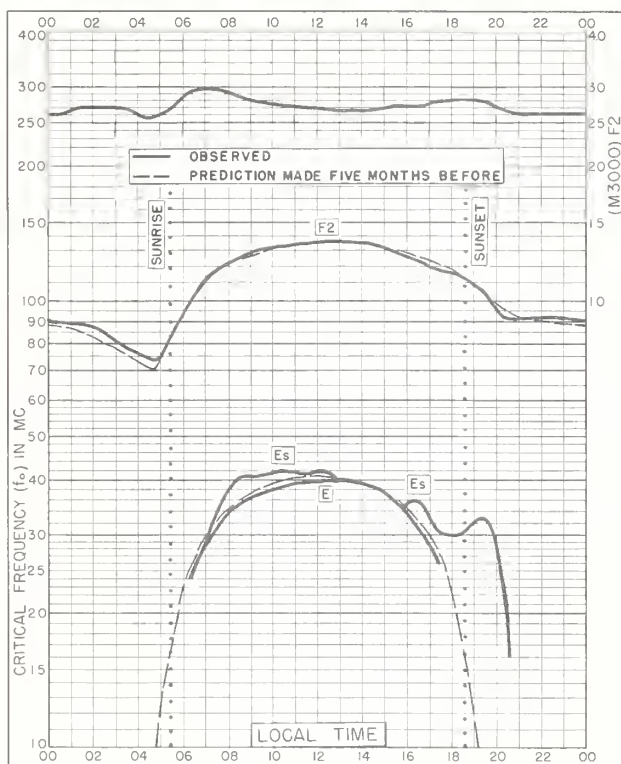


Fig. 93. AKITA, JAPAN
39.7°N, 140.1°E

APRIL 1959

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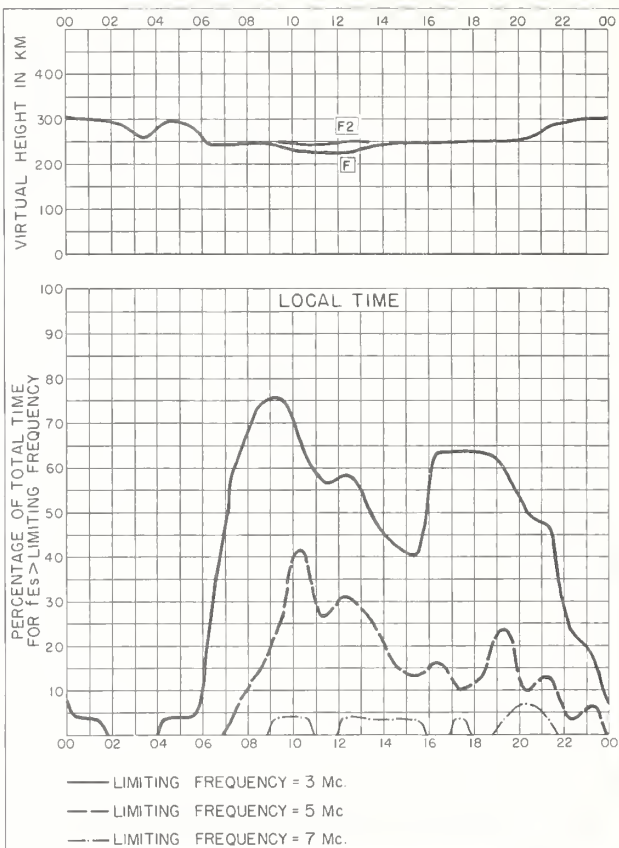


Fig. 94. AKITA, JAPAN

APRIL 1959

NBS 490

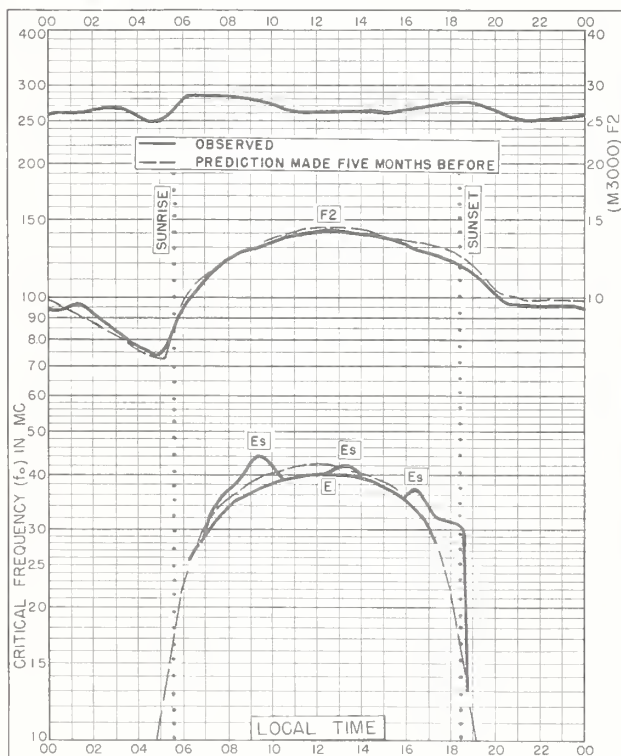


Fig. 95. TOKYO, JAPAN
35.7°N, 139.5°E

APRIL 1959

NBS 503

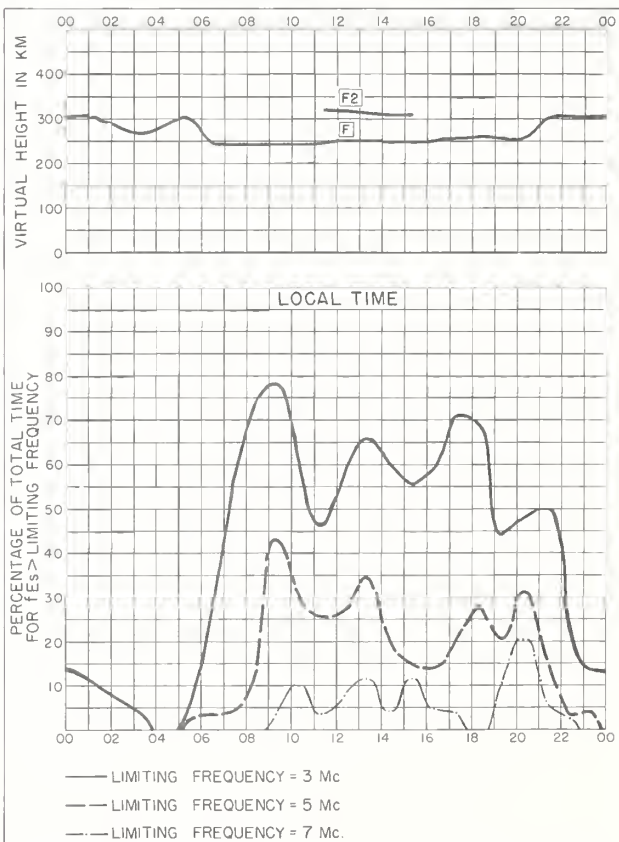


Fig. 96. TOKYO, JAPAN

APRIL 1959

NBS 490

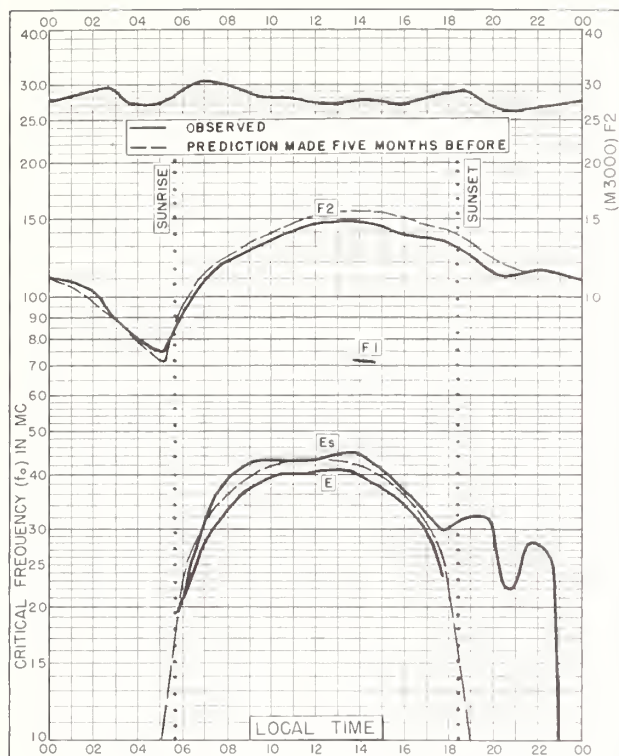


Fig. 97. YAMAGAWA, JAPAN
31.2°N, 130.6°E

APRIL 1959

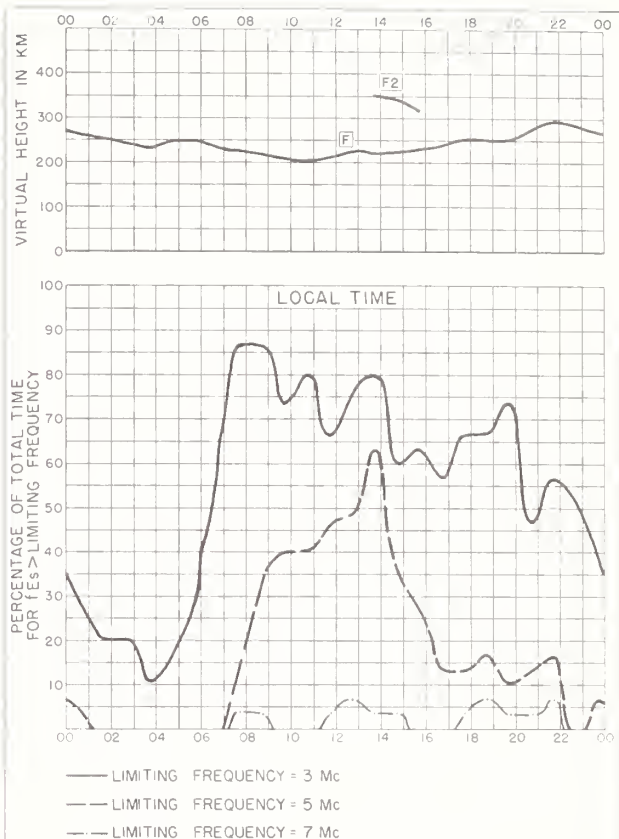


Fig. 98. YAMAGAWA, JAPAN

APRIL 1959

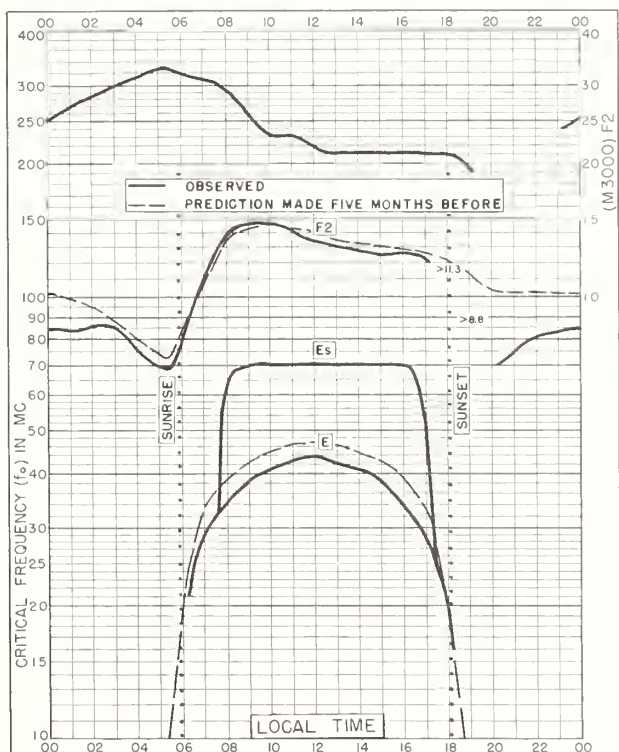


Fig. 99. IBADAN, NIGERIA
7.4°N, 3.9°E

APRIL 1959

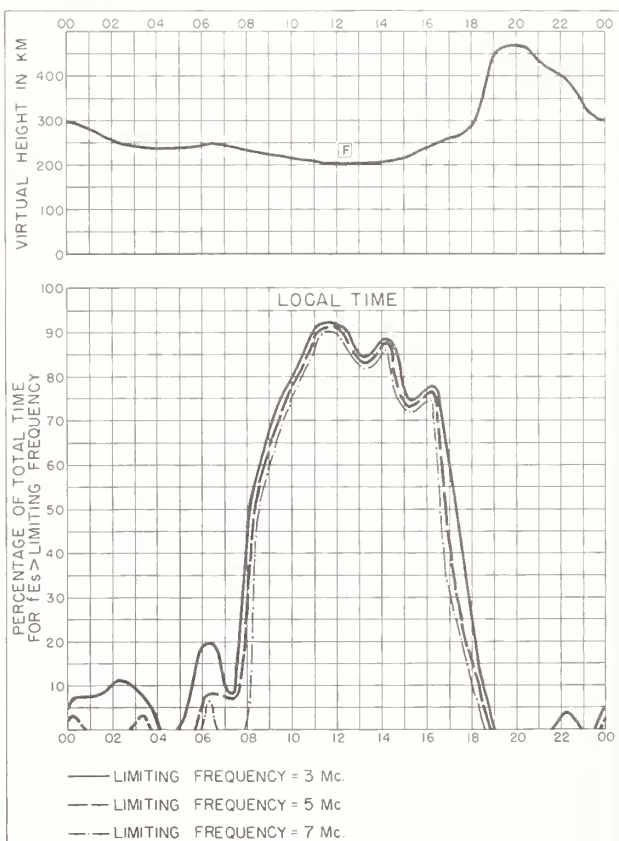


Fig. 100. IBADAN, NIGERIA

APRIL 1959

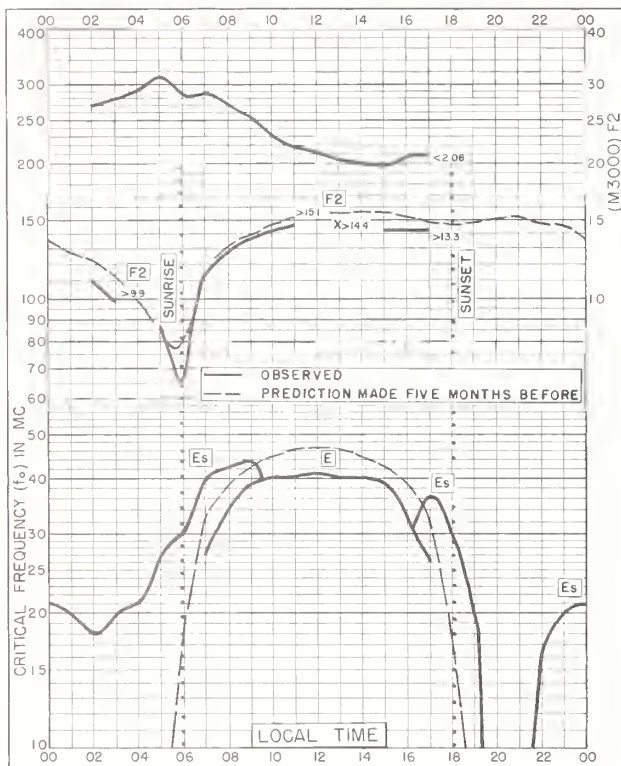


Fig. 101. BUNIA, BELGIAN CONGO
1.5°N, 30.2°E

APRIL 1959

NBS 503

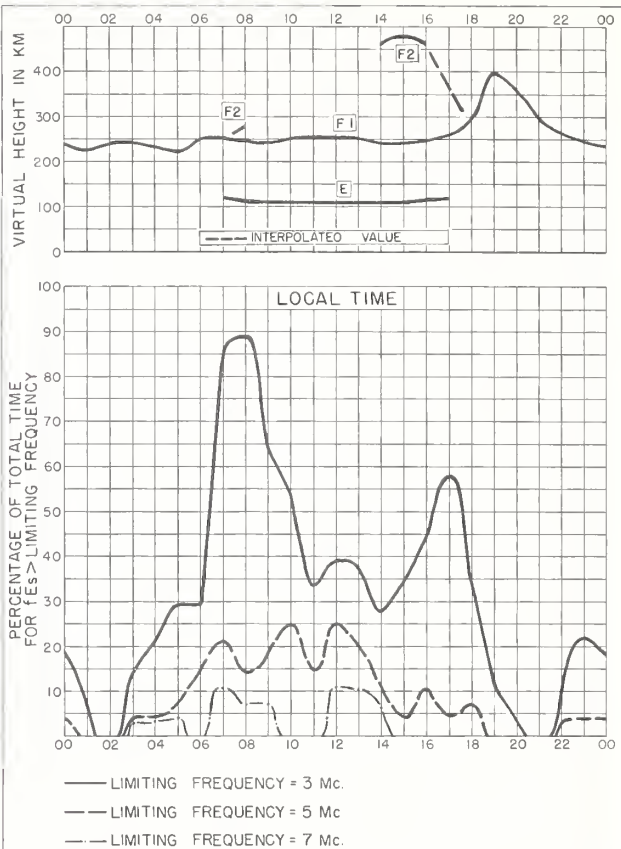


Fig. 102. BUNIA, BELGIAN CONGO

APRIL 1959

NBS 490

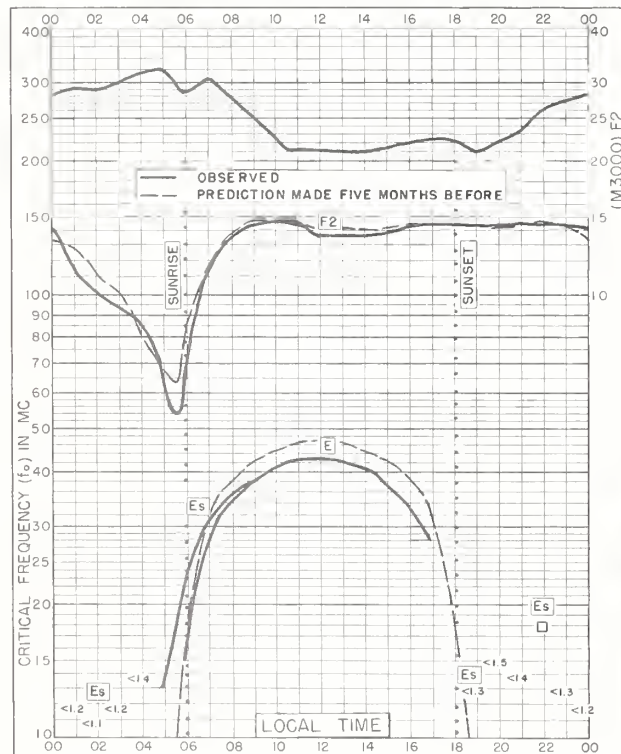


Fig. 103. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E

APRIL 1959

NBS 503

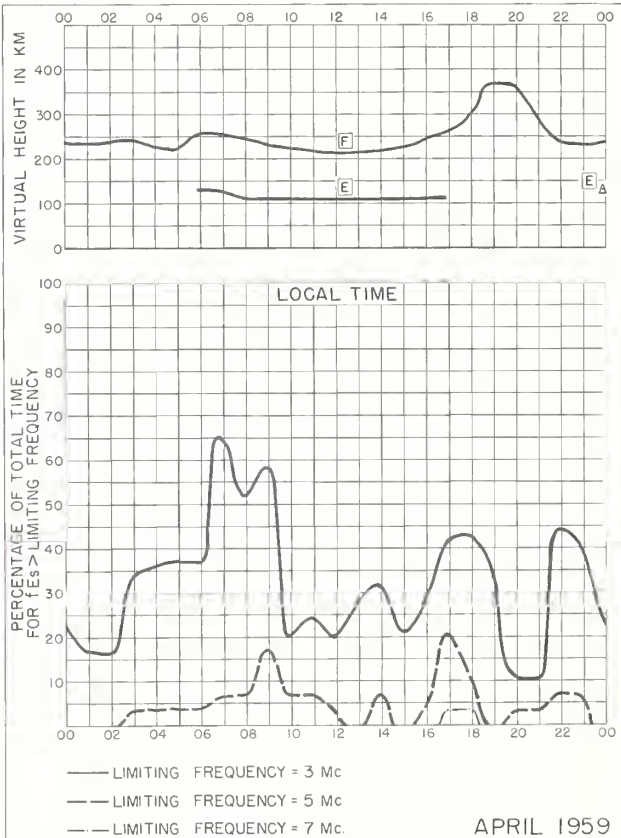


Fig. 104. SINGAPORE, BRITISH MALAYA

APRIL 1959

NBS 490

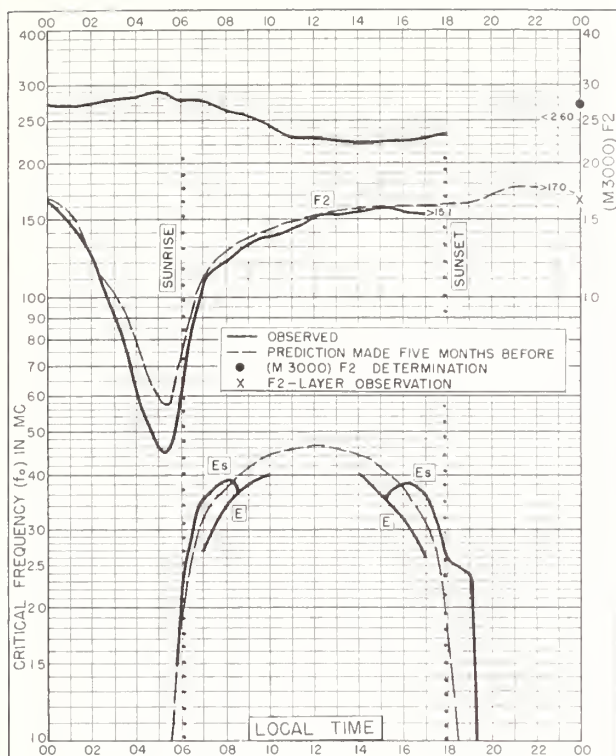


Fig. 105. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E
APRIL 1959

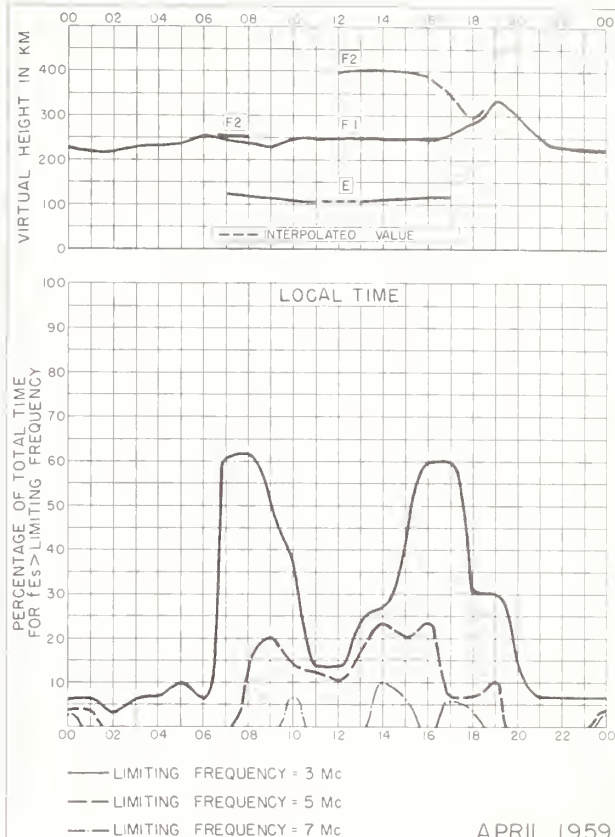


Fig. 106. LEOPOLDVILLE, BELGIAN CONGO
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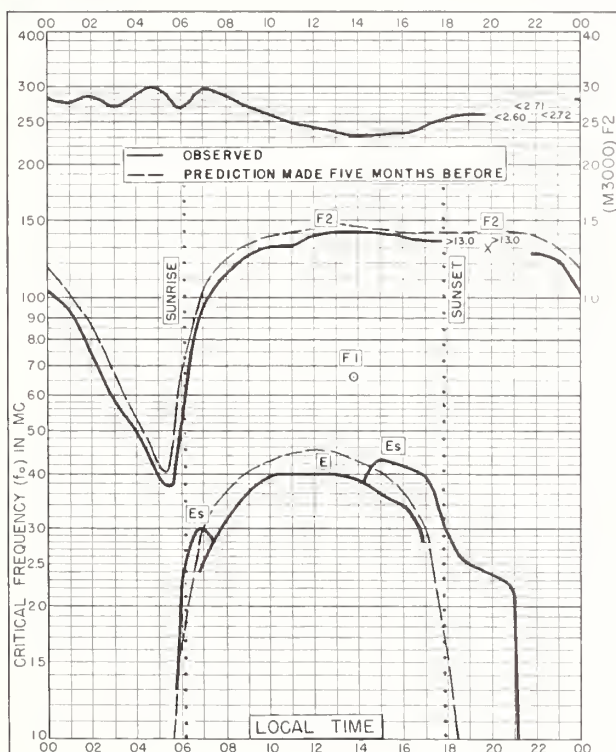


Fig. 107. ELISABETHVILLE, BELGIAN CONGO
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APRIL 1959

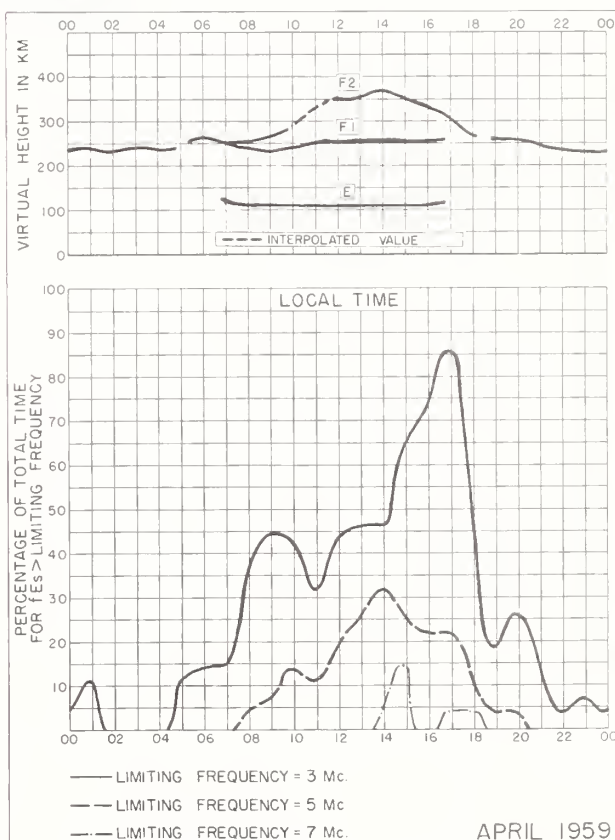


Fig. 108. ELISABETHVILLE, BELGIAN CONGO
APRIL 1959

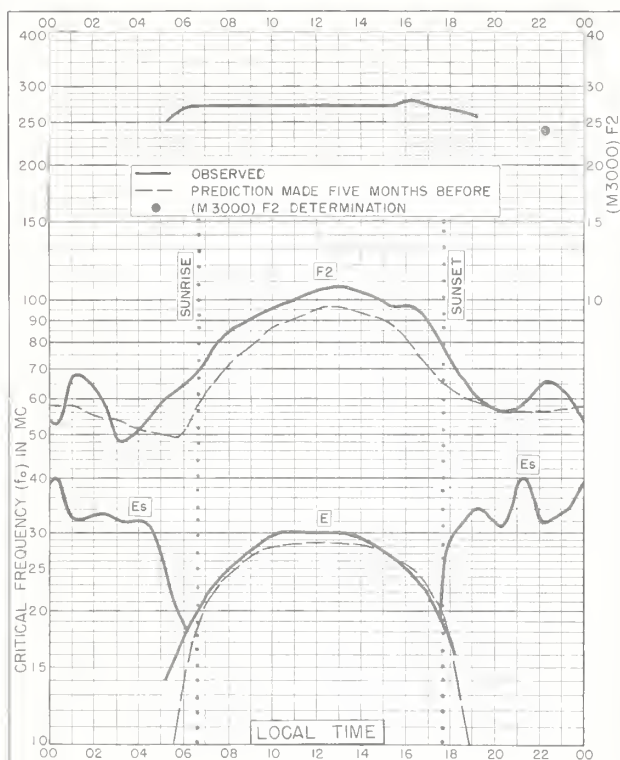


Fig. 109. TROMSØ, NORWAY
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MARCH 1959

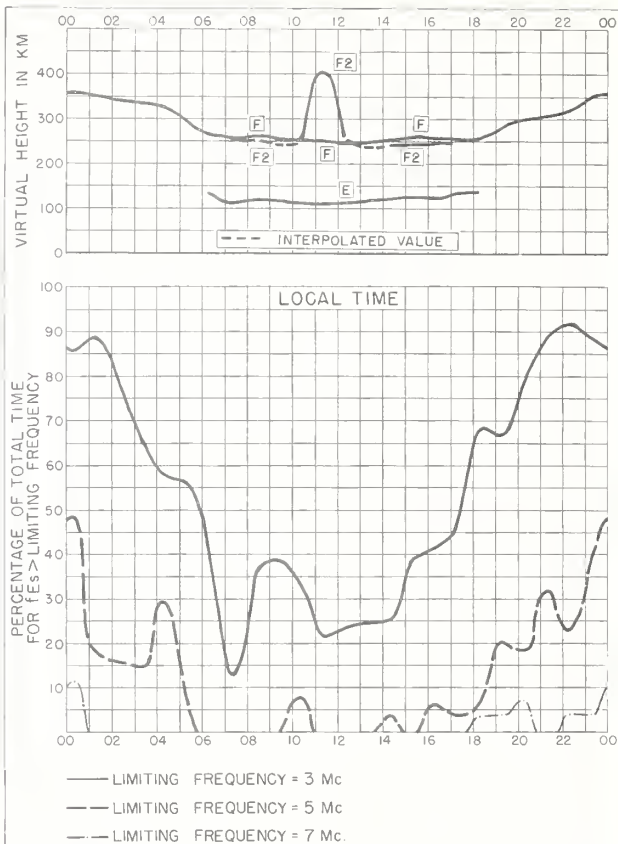


Fig. 110. TROMSØ, NORWAY

MARCH 1959

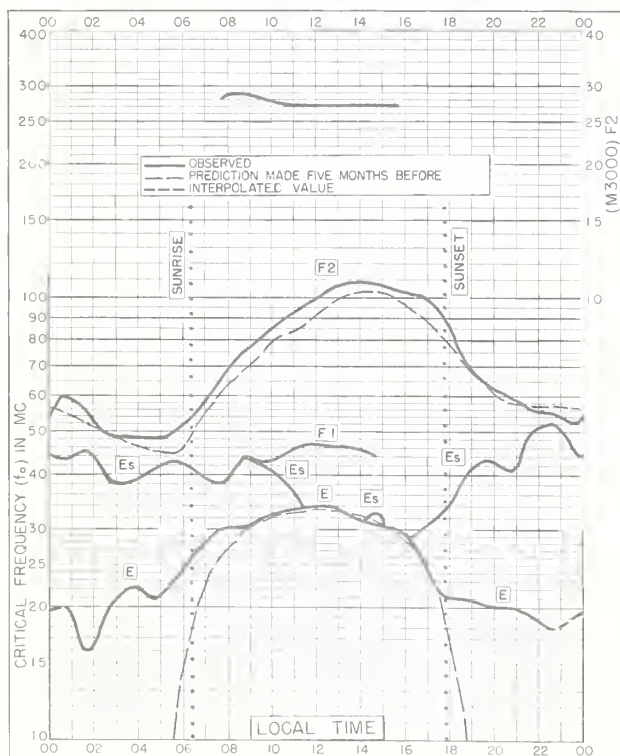


Fig. 111. CHURCHILL, CANADA
58.8°N, 94.2°W

MARCH 1959

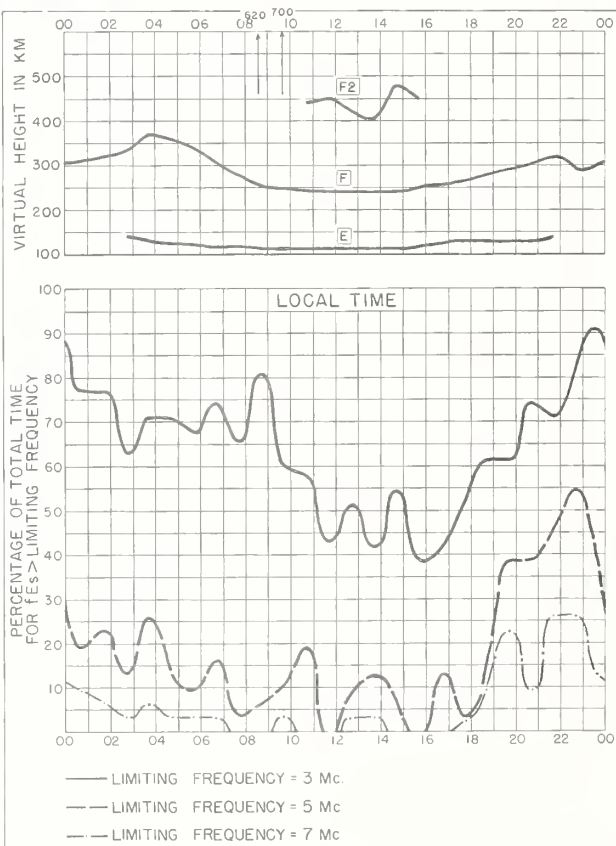


Fig. 112. CHURCHILL, CANADA

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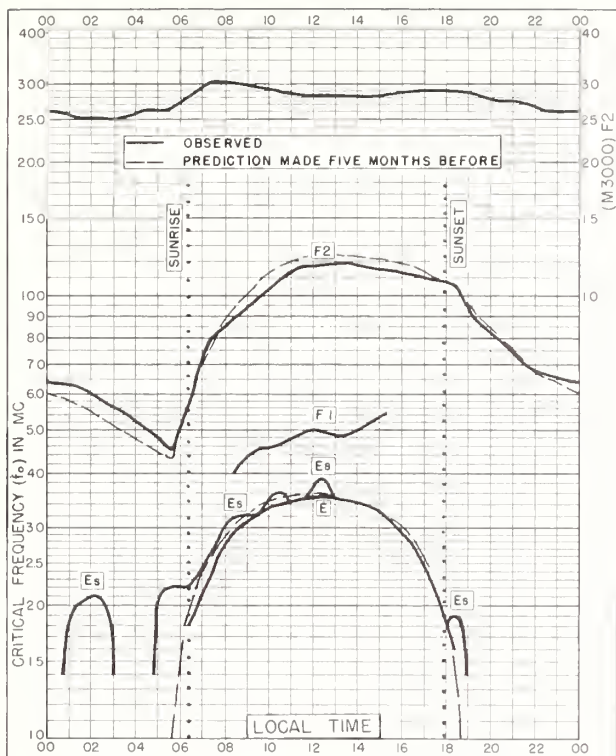


Fig. 113. De BILT, HOLLAND
52.1°N, 5.2°E

MARCH 1959

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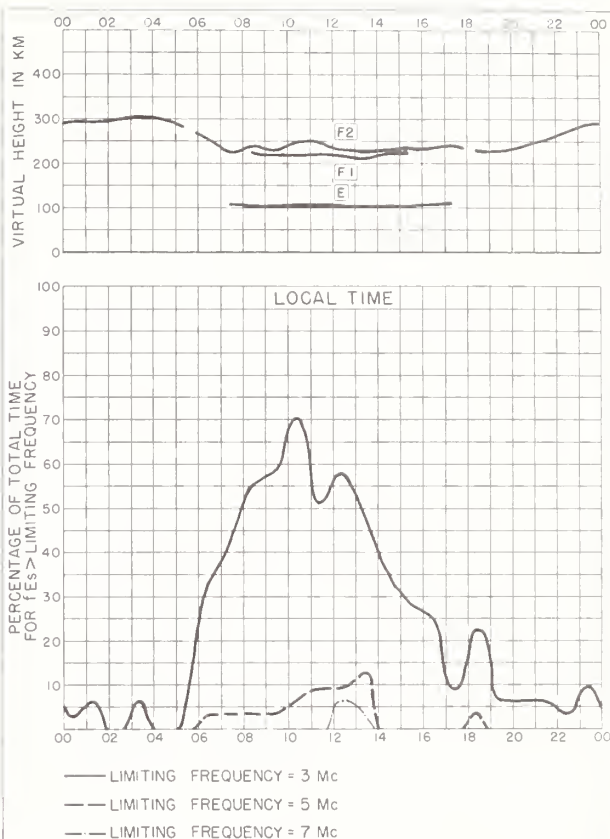


Fig. 114. De BILT, HOLLAND

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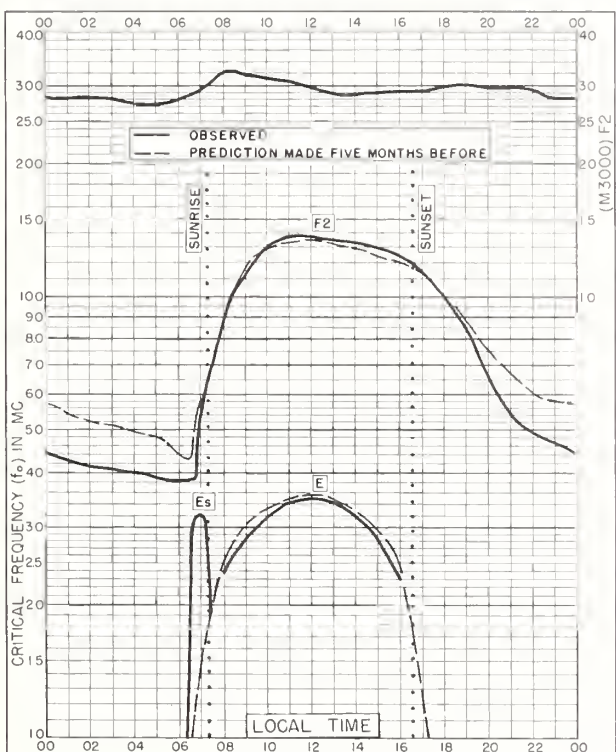


Fig. 115. BOULDER, COLORADO
40.0°N, 105.3°W

DECEMBER 1958

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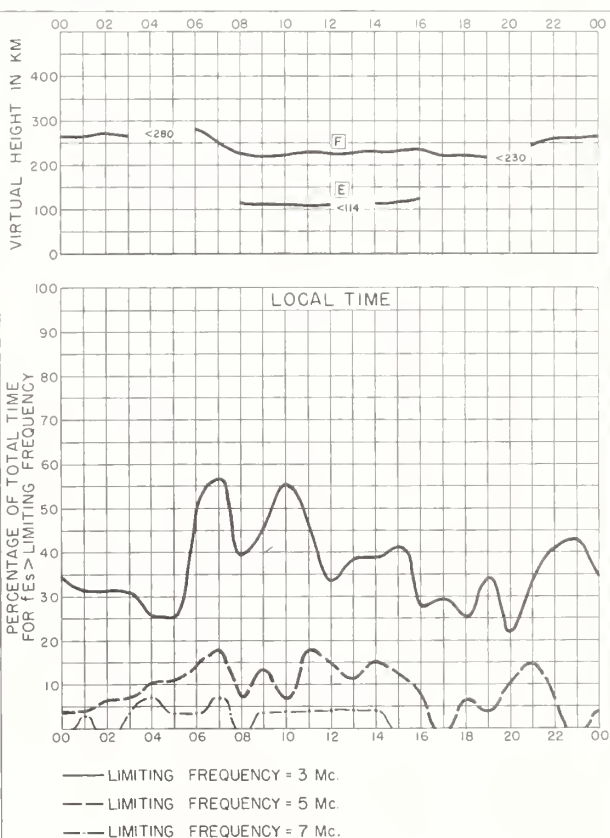


Fig. 116. BOULDER, COLORADO

DECEMBER 1958

NBS 490

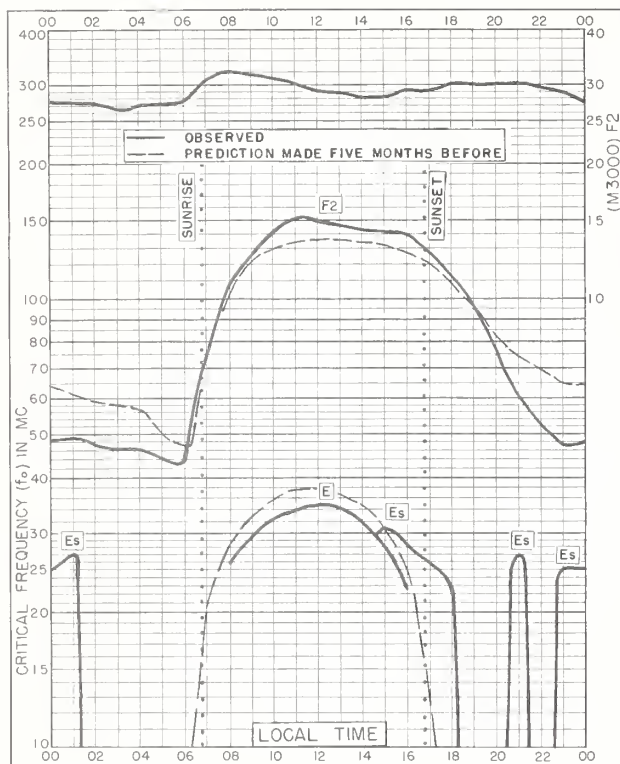


Fig. 117. BOULDER, COLORADO
40.0°N, 105.3°W NOVEMBER 1958

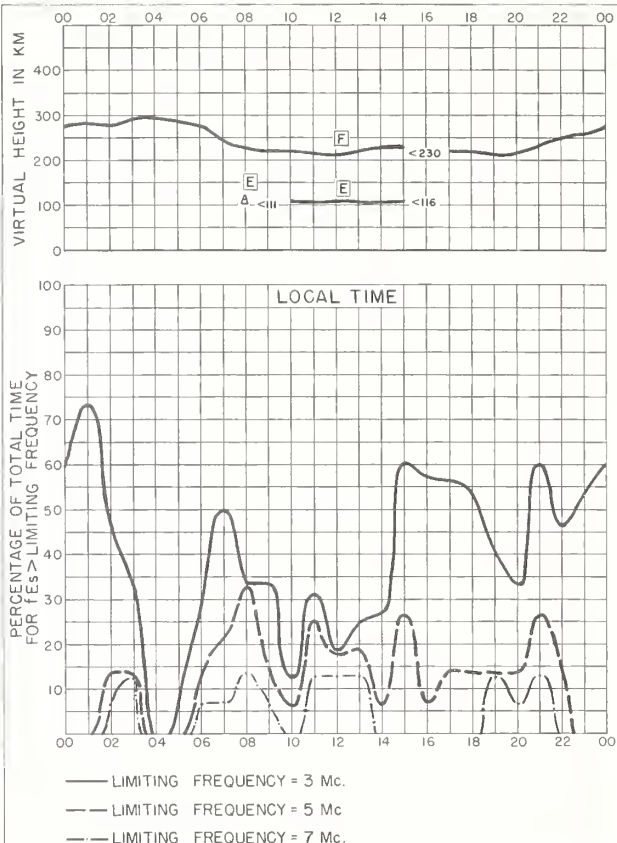


Fig. 118. BOULDER, COLORADO NOVEMBER 1958

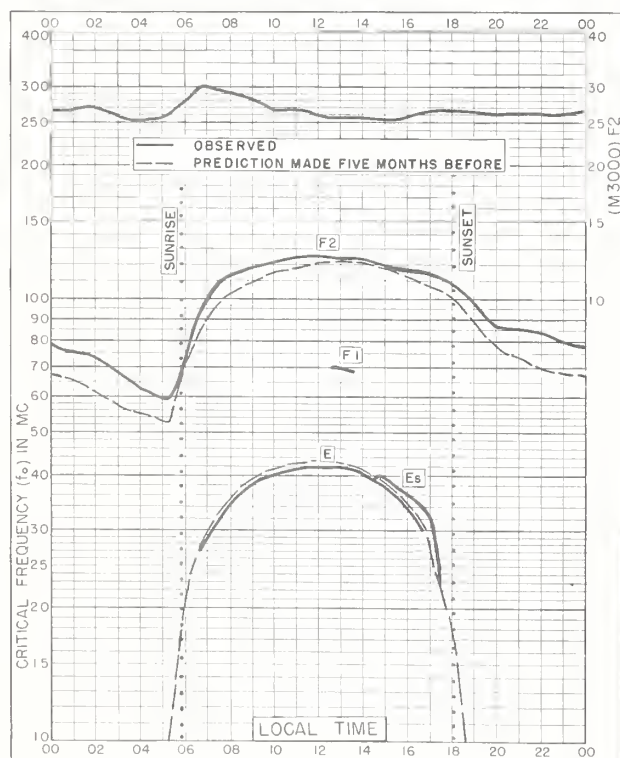


Fig. 119. CAPE CANAVERAL, FLORIDA
28.4°N, 80.6°W SEPTEMBER 1958

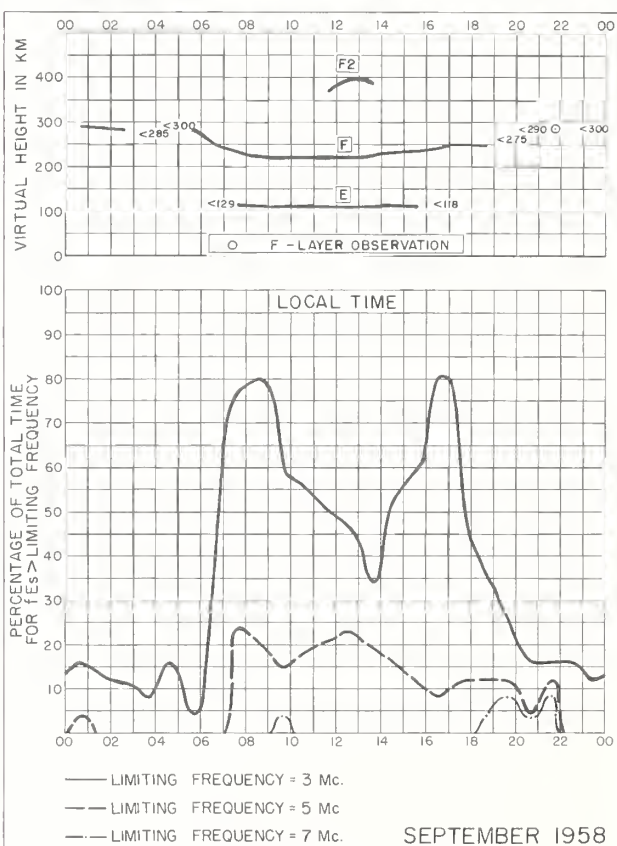


Fig. 120. CAPE CANAVERAL, FLORIDA SEPTEMBER 1958

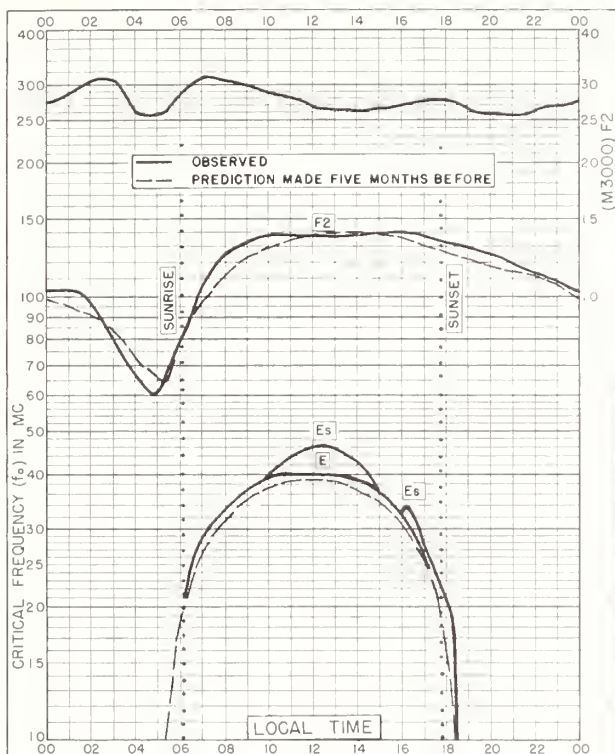
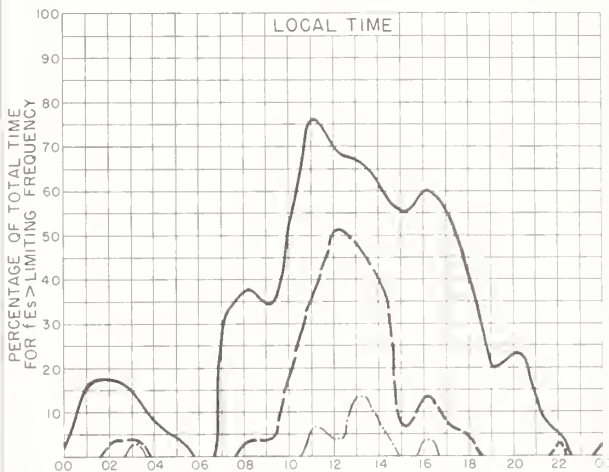
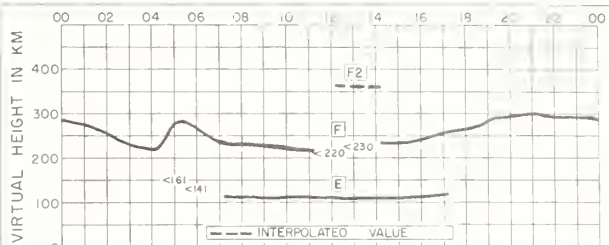


Fig. 121. CONCEPCION, CHILE

36.6°S, 73.0°W

SEPTEMBER 1958



— LIMITING FREQUENCY = 3 Mc.

- - - LIMITING FREQUENCY = 5 Mc

- . - LIMITING FREQUENCY = 7 Mc

Fig. 122. CONCEPCION, CHILE SEPTEMBER 1958

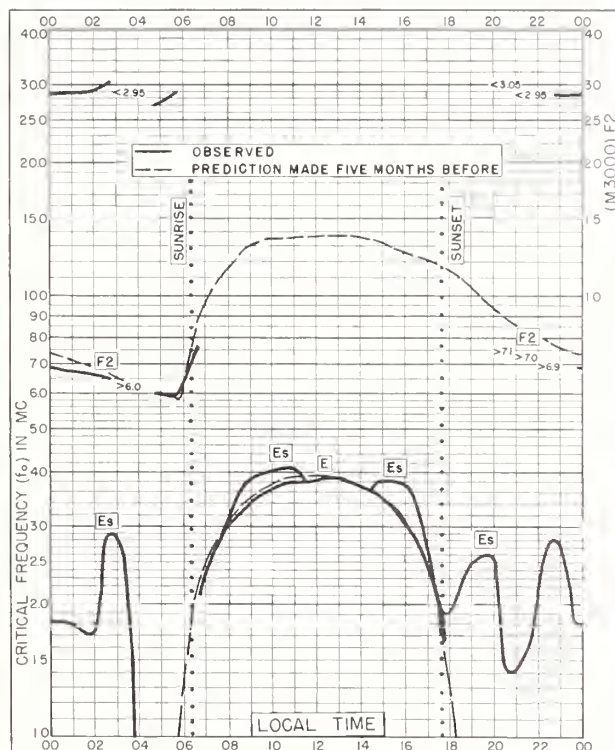
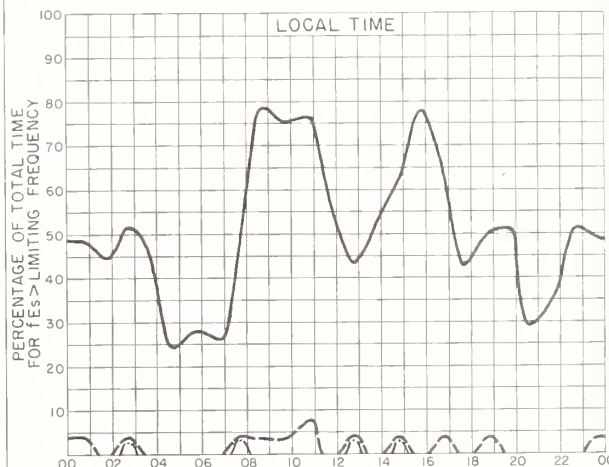
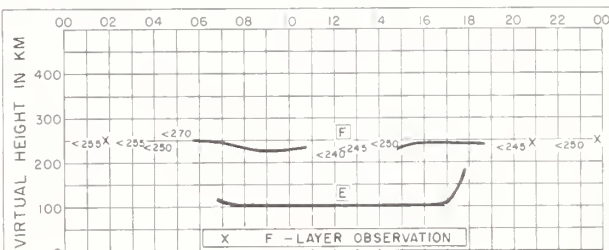


Fig. 123. WATHEROO, W. AUSTRALIA

30.3°S, 115.9°E

APRIL 1958



— LIMITING FREQUENCY = 3 Mc.

- - - LIMITING FREQUENCY = 5 Mc.

- . - LIMITING FREQUENCY = 7 Mc.

Fig. 124. WATHEROO, W. AUSTRALIA APRIL 1958

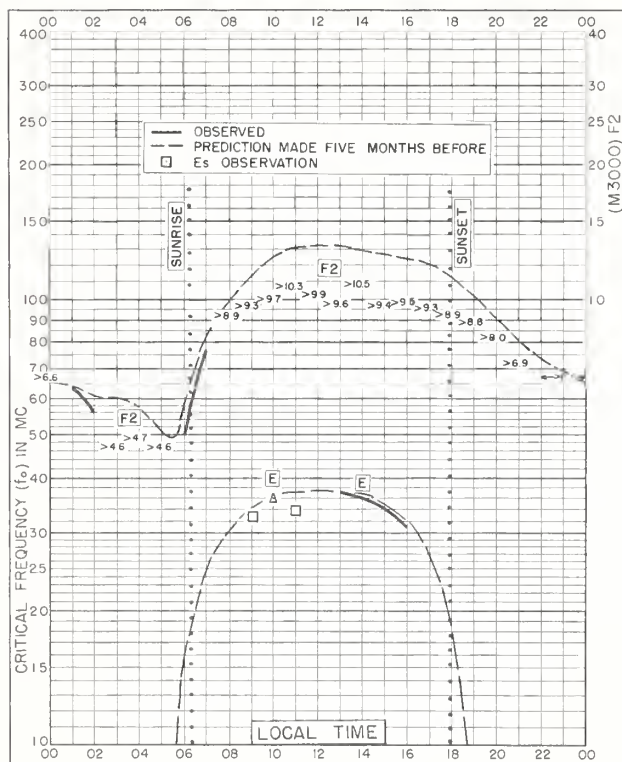


Fig. 125. GRAZ, AUSTRIA
47.1°N, 15.5°E

MARCH 1958

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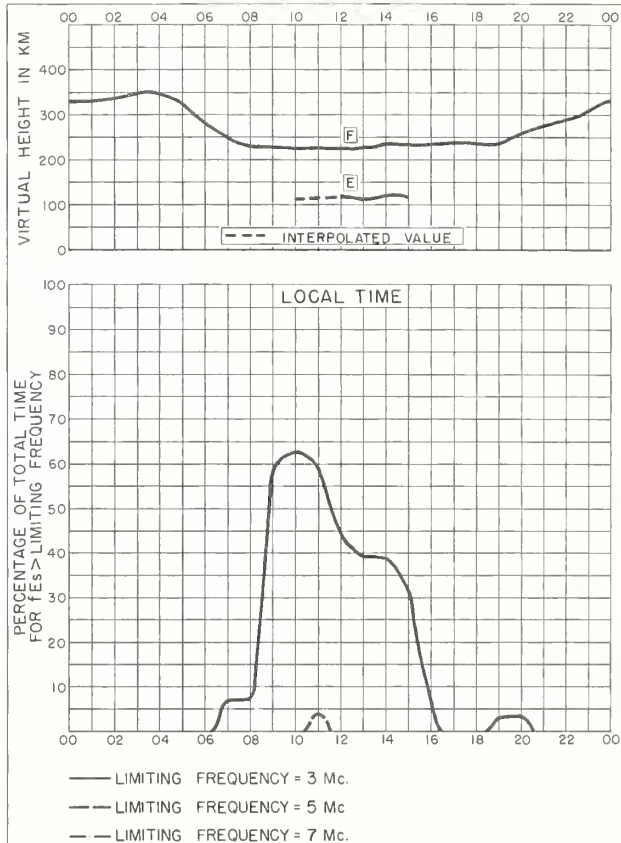


Fig. 126. GRAZ, AUSTRIA

MARCH 1958

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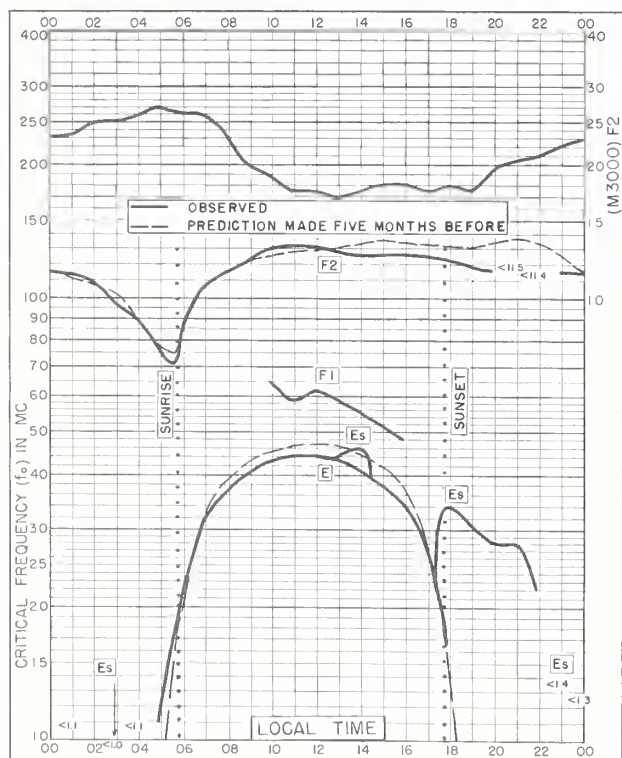


Fig. 127. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E

NOVEMBER 1957

NBS 503

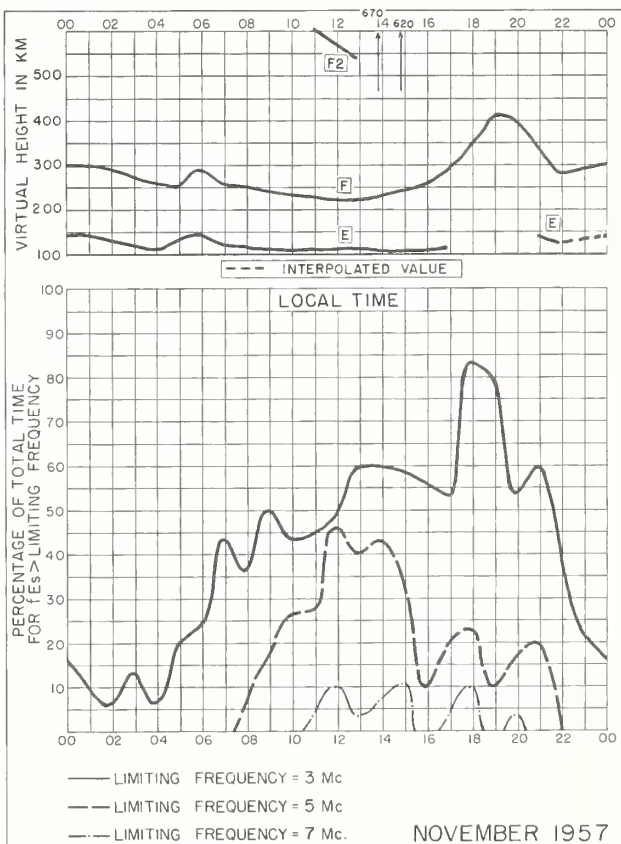


Fig. 128. SINGAPORE, BRITISH MALAYA

NOVEMBER 1957

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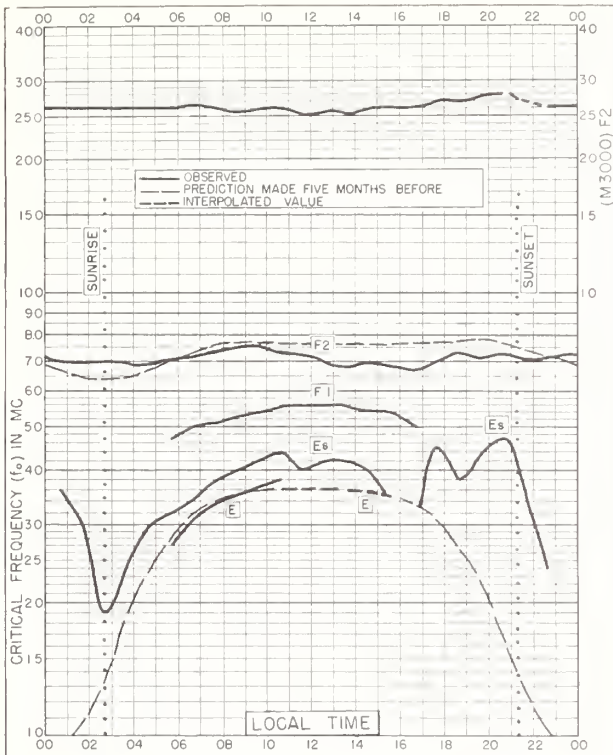


Fig. 129. NURMIJARVI, FINLAND
60.5°N, 24.6°E

JUNE 1957

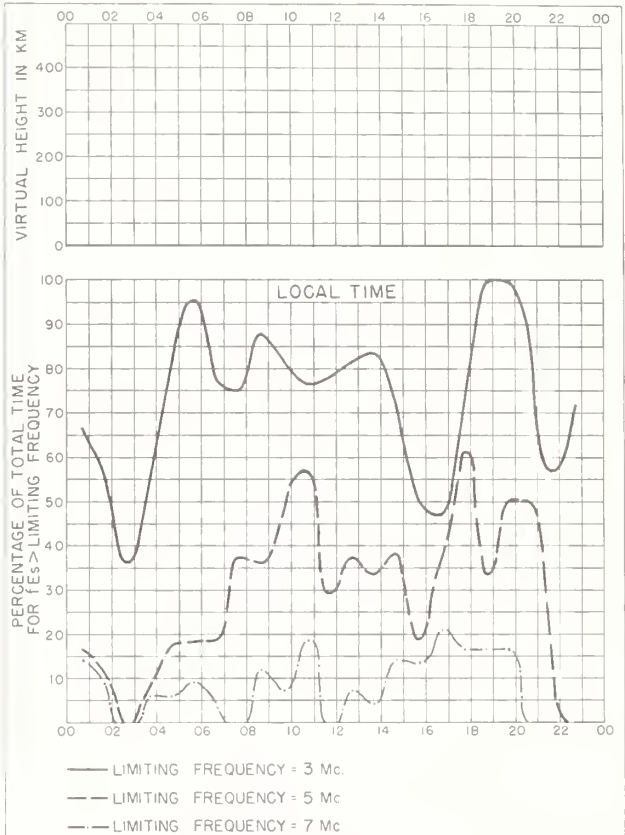


Fig. 130. NURMIJARVI, FINLAND

JUNE 1957

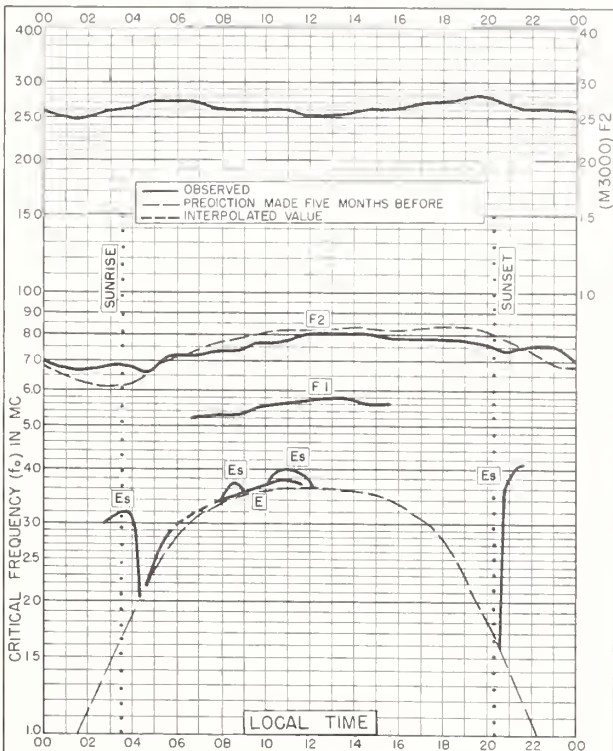


Fig. 131. NURMIJARVI, FINLAND
60.5°N, 24.6°E

MAY 1957

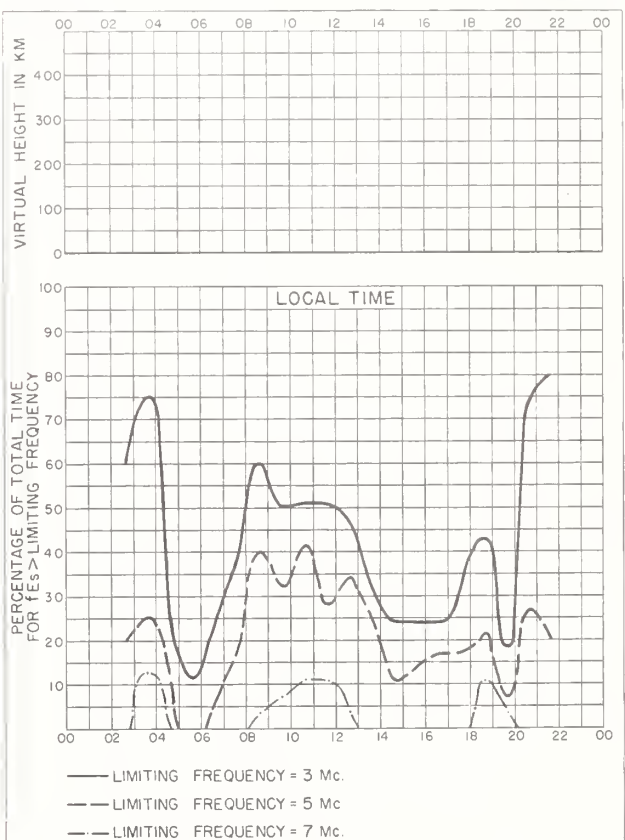


Fig. 132. NURMIJARVI, FINLAND

MAY 1957

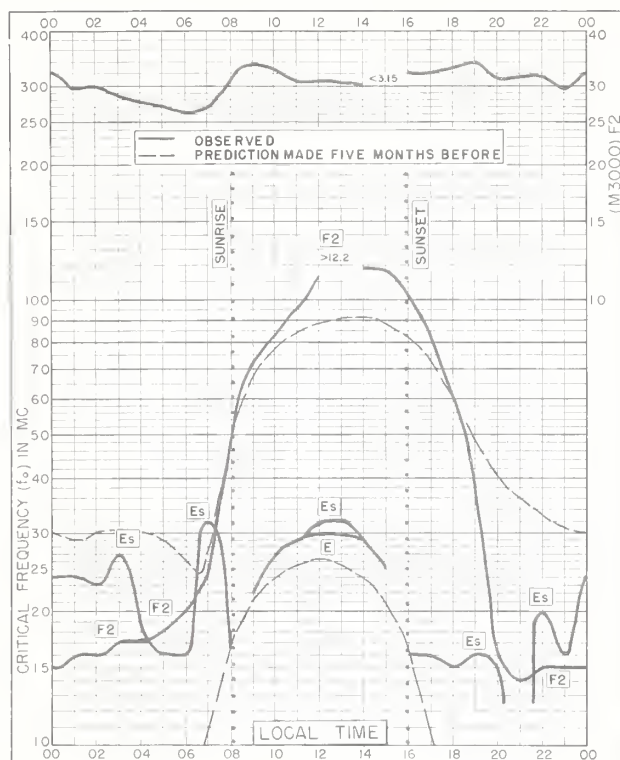


Fig. 133. KERGUELEN I.
49.3°S, 70.5°E

JUNE 1956

NBS 503

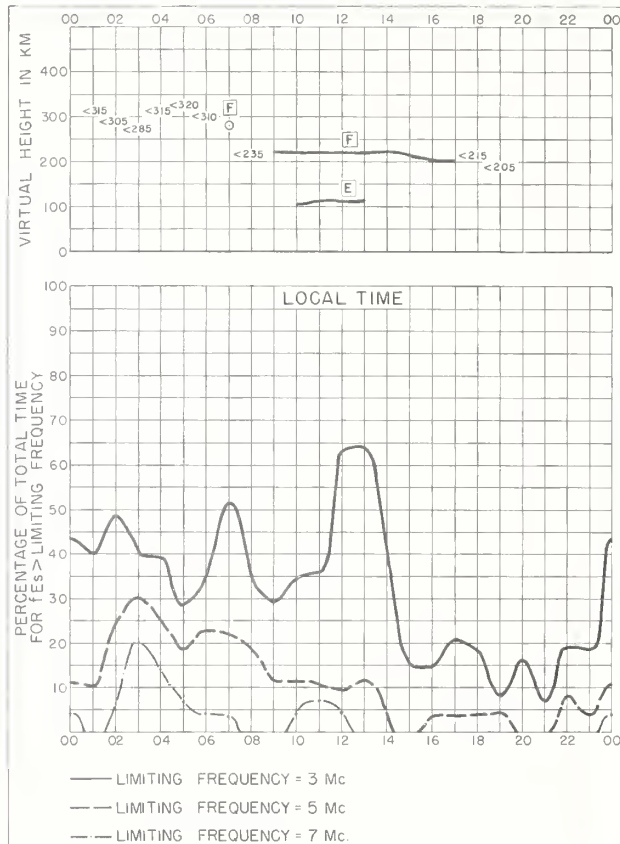


Fig. 134. KERGUELEN I.

JUNE 1956

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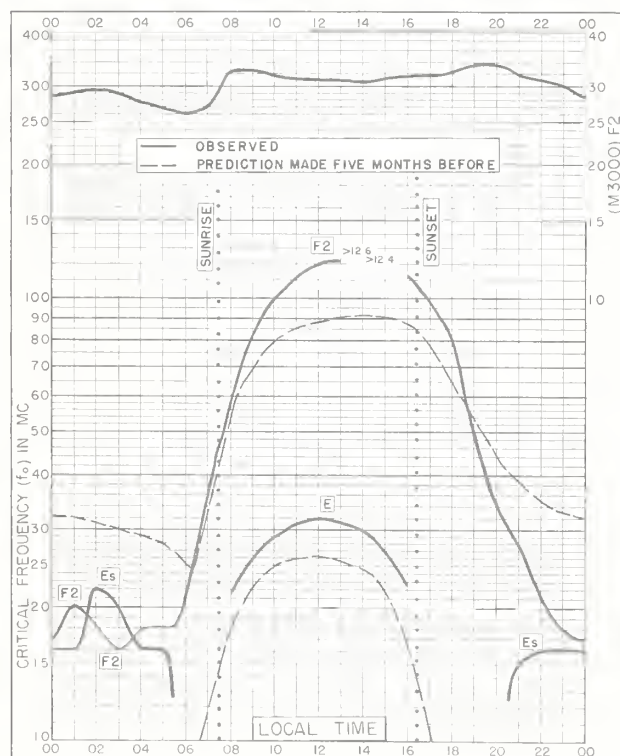


Fig. 135. KERGUELEN I.
49.3°S, 70.5°E

MAY 1956

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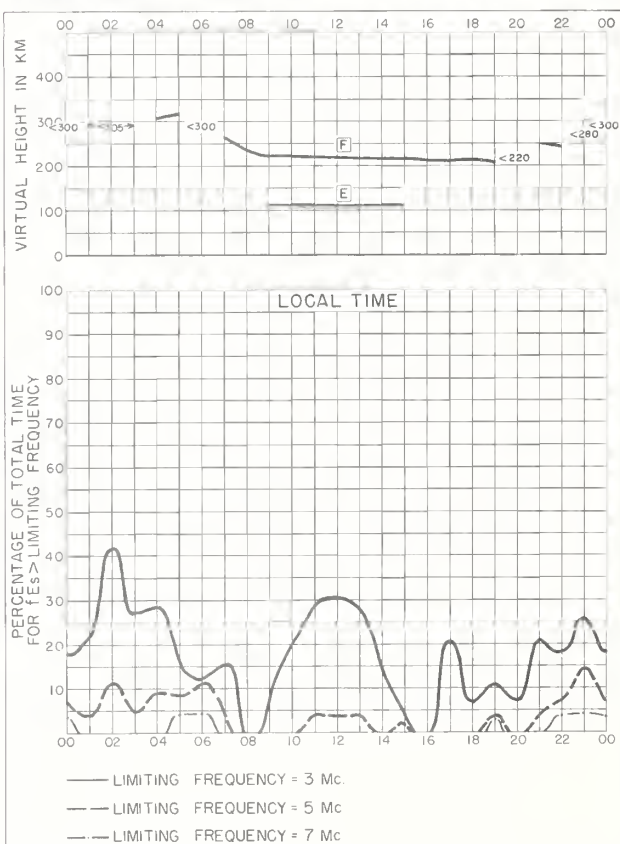


Fig. 136. KERGUELEN I.

MAY 1956

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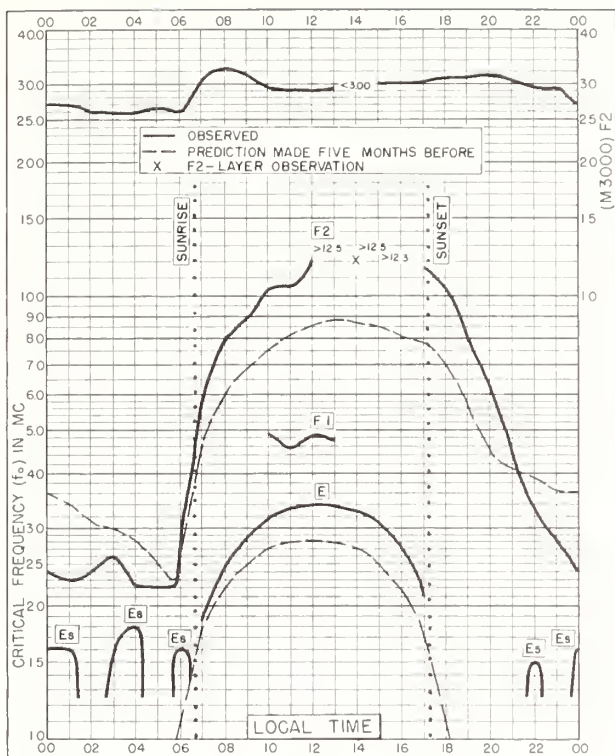


Fig. 137. KERGUELEN I.
49.3°S, 70.5°E

APRIL 1956

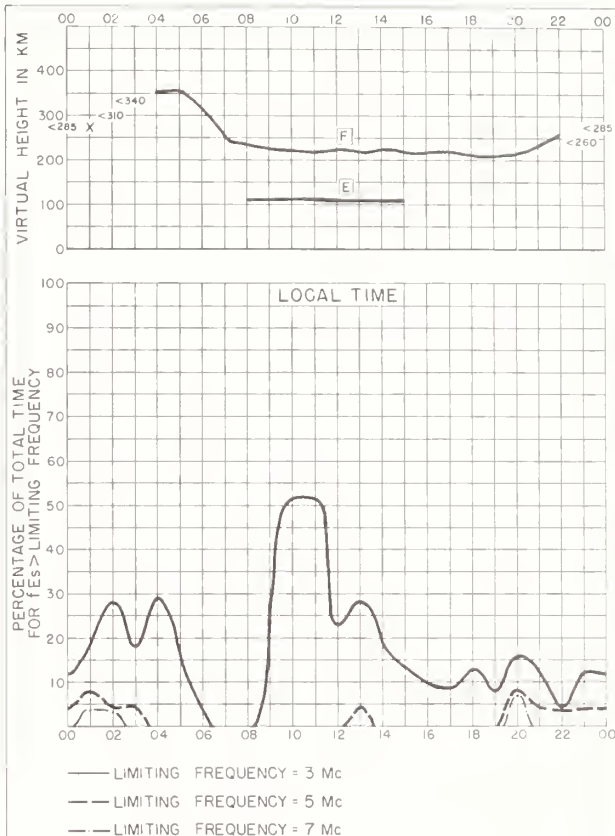


Fig. 138. KERGUELEN I.

APRIL 1956

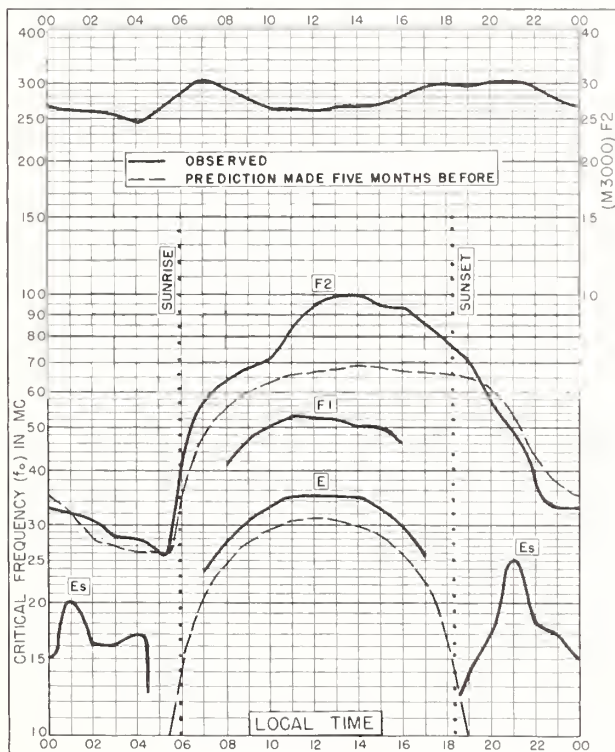


Fig. 139. KERGUELEN I.
49.3°S, 70.5°E

MARCH 1956

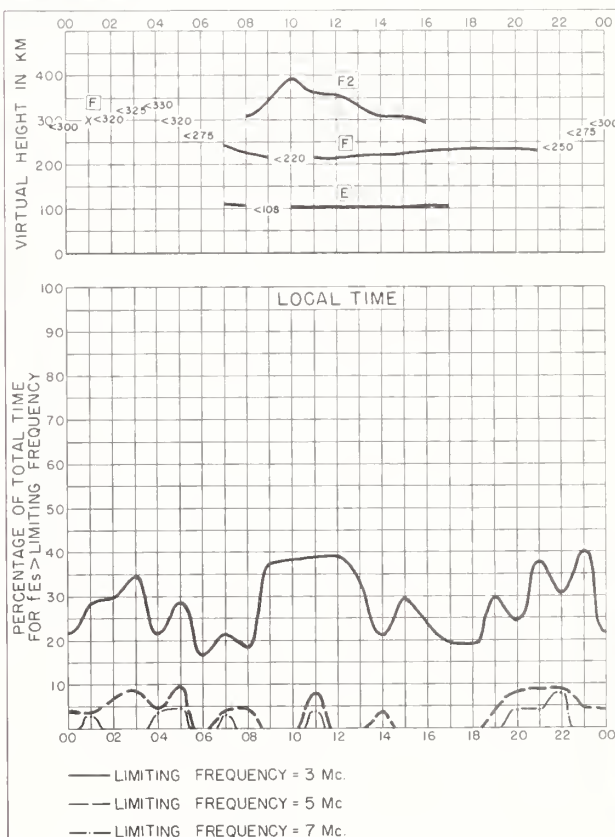


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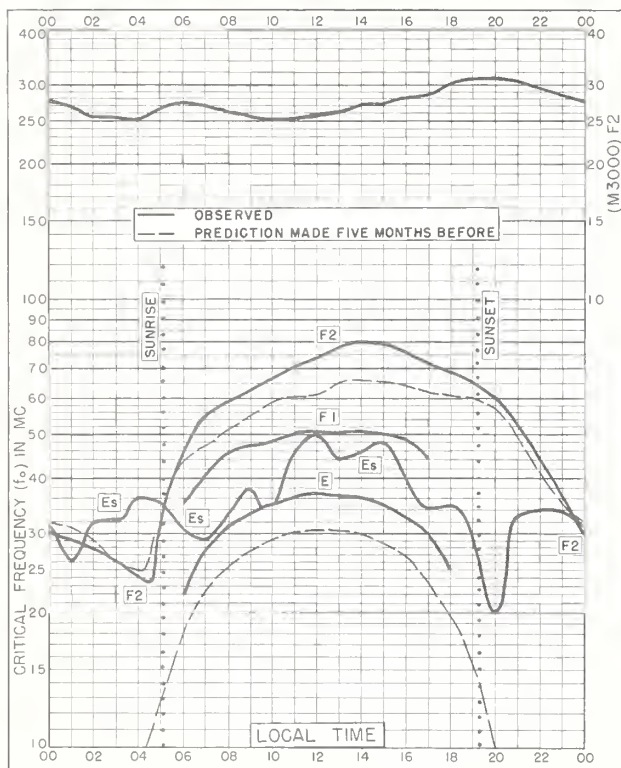


Fig. 141. KERGUELEN I.
49.3°S, 70.5°E

FEBRUARY 1956

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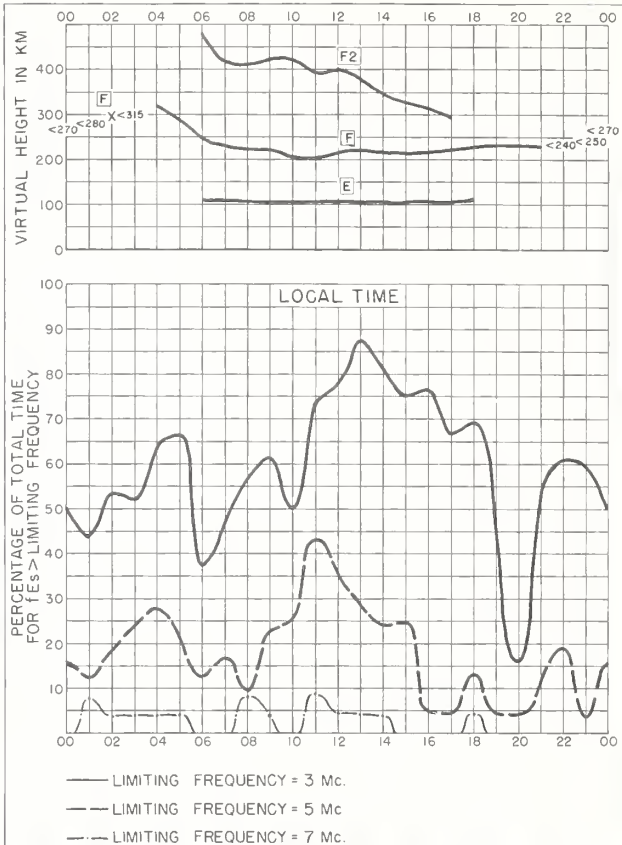


Fig. 142. KERGUELEN I.

FEBRUARY 1956

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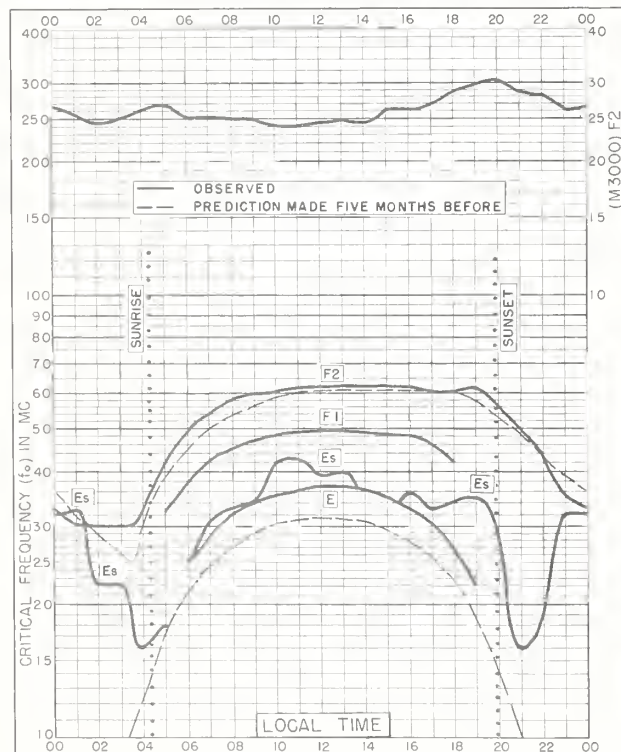


Fig. 143. KERGUELEN I.
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JANUARY 1956

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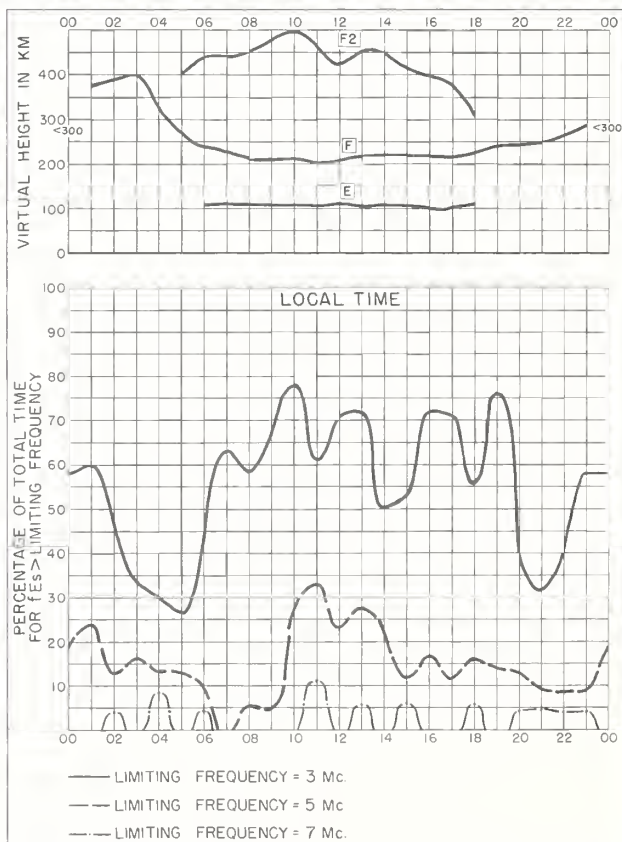


Fig. 144. KERGUELEN I.

JANUARY 1956

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Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

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CRPL—J. North Atlantic Radio Propagation Forecast (of days most likely to be disturbed during following month).

CRPL—Jp. North Pacific Radio Propagation Forecast (of days most likely to be disturbed during following month).

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